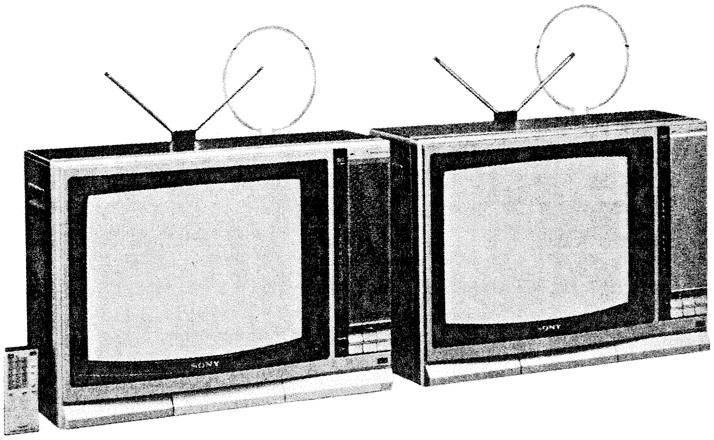
KV-1954R/1955R

RM-712

SERVICE MANUAL

US Model

KV-1954R
Chassis No. SCC-470C-A
KV-1955R
Chassis No. SCC-470D-A



- KV-1954R
- KV-1955R

March, 1983

P2 CHASSIS

SPECIFICATIONS

Also refer to ADJUSTMENT MANUAL.

Television system	American TV standards
Channel coverage	VHF channels 2–13 UHF channels 14–83 (a total of up to 14 preselected channels)
Picture tube	Trinitron tube 19-inch picture measured diagonally 100-degree deflection
Antenna	VHF telescopic dipole antenna UHF loop antenna 75-ohm external antenna terminal for VHF 300-ohm external antenna terminals for UHF
Speaker	12 × 8 cm (4$^3/_4$ × 3$^1/_4$ inches)
Power requirements	120 V ac, 60 Hz
Power consumption	120 W (max.), 77 W (average) 3.9 W (in standby condition)
Dimensions	Approx. 639 × 472.5 × 478.5 mm (w/h/d) (25$^1/_4$ × 18$^5/_8$ × 18$^7/_8$ inches)
Weight	Approx. 26 kg (57 lb 6 oz)
Accessories supplied	Channel number segments (1 set) Remote Commander RM-712 (1) Earphone (1)

MICRO FILM

TRINITRON® COLOR TV

SONY®

CTV

WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).
   Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

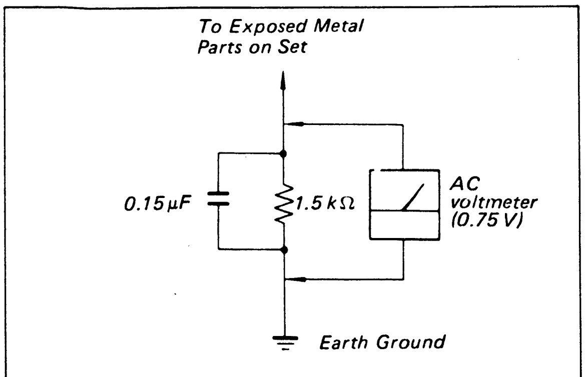


Fig. A. Using an AC voltmeter to check AC leakage.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60–100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

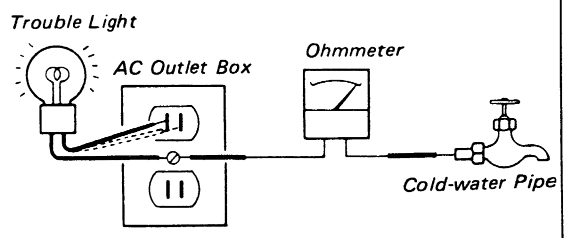
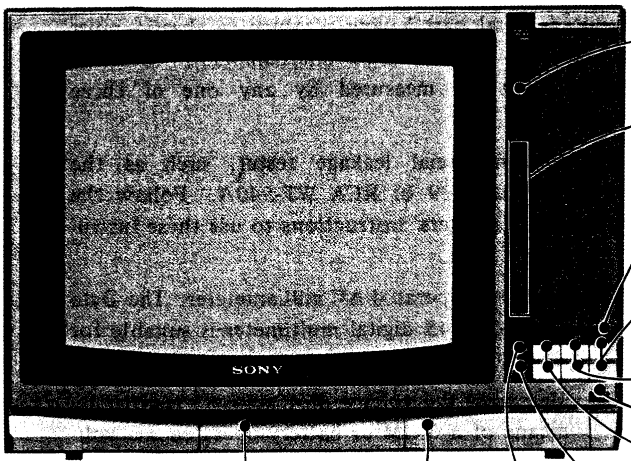


Fig. B. Checking for earth ground.

SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS



Remote control detector

Channel indicators
The selected channel position will light.

POWER switch
Press to turn on the TV after pushing the MASTER switch in. Press again to turn it off.

CHANNEL scan buttons
Press to scan the preset channels.

VOLUME buttons
Press the + or – VOLUME button to regulate the volume.

Earphone jacks [·] [:]

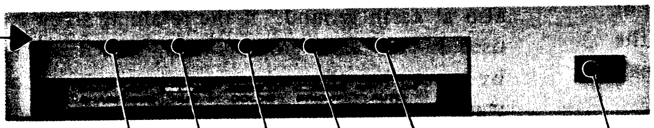
PICTURE buttons
Adjust the picture contrast to suit your preference and the room lighting.

SLEEP lamp
Lights when the SLEEP button on the Remote Commander is pressed.

RESPONSE lamp
Blinks when any function button on the TV and on the Remote Commander is pressed. Lights steadily when the volume or picture contrast is at its minimum or its maximum and while the sound is muted.
This indication is useful during remote control operation.

Presetting compartment
All the switches and controls for channel presetting are in this compartment. A tuning aid is attached onto the panel for your convenience. For the presetting procedure, see page 7.

behind panel



MASTER switch
Press to set the TV to the standby mode. This switch must be pushed in to operate with the Remote Commander.

AUTO switch

BRIGHT (brightness) control

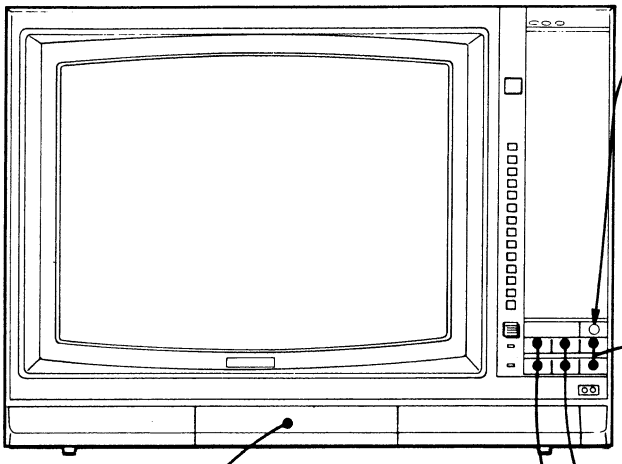
COLOR control

HUE control

SHARPNESS control

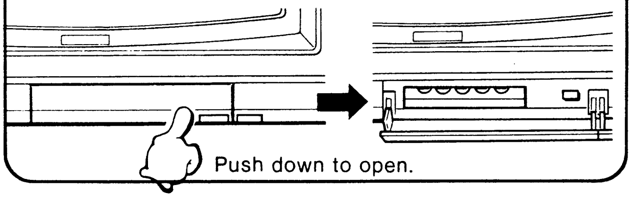
Use the switch and controls here to adjust the picture. See page 6.

1-2. NORMAL TV OPERATION (PANEL OPERATION)



1 **Press the MASTER switch.**

Generally keep this switch pushed in to be able to operate the TV with the Remote Commander.



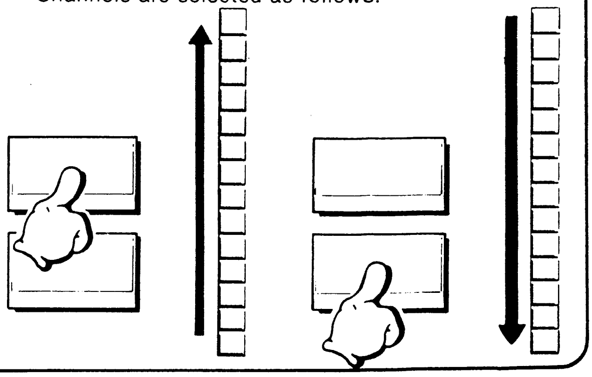
Push down to open.

2 **Press the POWER switch.**

The picture will appear.

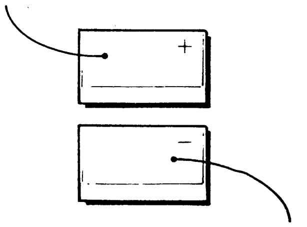
3 **Select the desired channel by pressing the CHANNEL scan buttons.***

Channels are selected as follows:



4 **Adjust the volume by pressing the VOLUME buttons.**

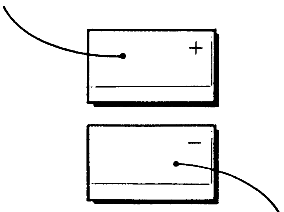
to increase the volume



to decrease the volume

5 **Adjust the picture contrast by pressing the PICTURE buttons.**

to increase the picture contrast



to decrease the picture contrast

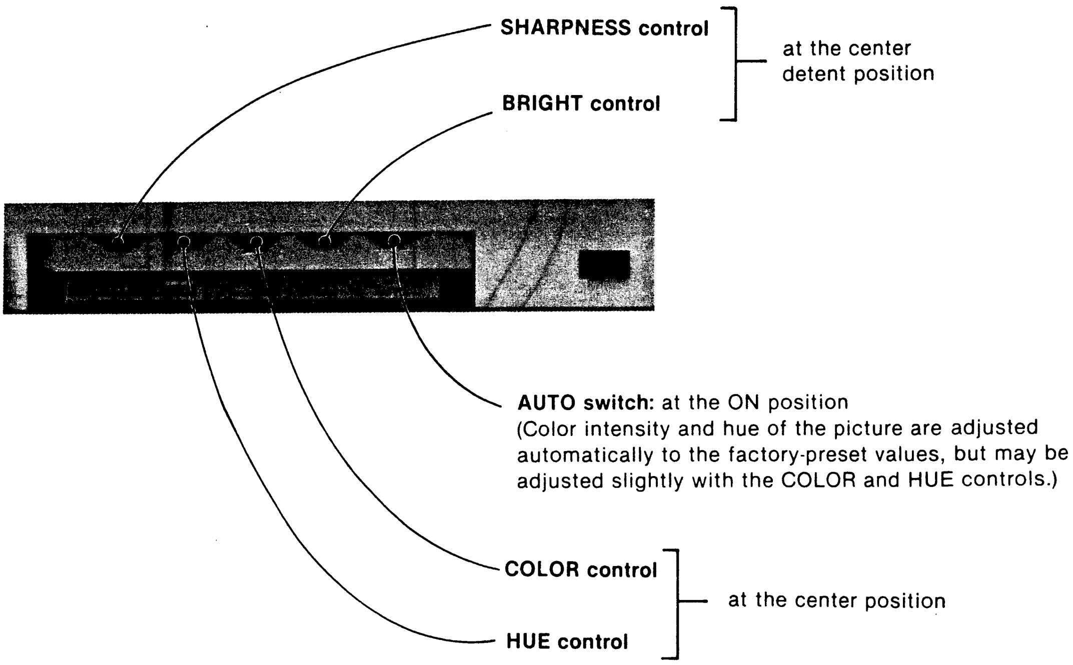
*This TV is preset at the factory to receive VHF channels 2 through 13 with the CHANNEL scan buttons. To add UHF channels or to skip inactive channels, see page 7.

To turn the TV off, press the POWER switch again.

1-3. PICTURE ADJUSTMENTS

Satisfactory results will usually be obtained with the controls set at the following positions. If any adjustments are necessary, adjust the required controls as described in the "Adjustment guide" according to picture conditions.

Normal position



SHARPNESS control
BRIGHT control
at the center detent position

AUTO switch: at the ON position
(Color intensity and hue of the picture are adjusted automatically to the factory-preset values, but may be adjusted slightly with the COLOR and HUE controls.)

COLOR control
HUE control
at the center position

1-4. CHANNEL PRESETTING

Your Sony TV has been factory-preadjusted to receive VHF channels 2 through 13 in sequence when you press the CHANNEL scan buttons. You can add any receivable UHF channels and cancel any inactive VHF channels, so that only the channels available in your area will be scanned.
To check each channel and its program, refer to a newspaper or TV program listings.

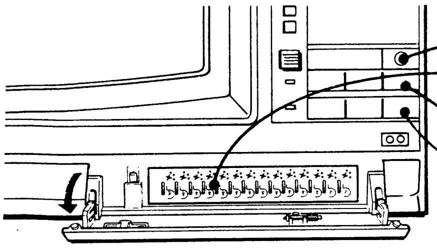
Factory preset

2	A
3	B
4	C
5	D
6	E
7	F
8	G
9	H
10	I
11	J
12	K
13	L
✳	M
✳	N

UHF channels can be preset on these two positions. If there are more UHF channels to receive, the presently unused positions among the positions 2–13 may be used.

Note
If you own a video cassette recorder, we recommend that you not reset channel 3 or 4 — whichever is inactive in your area — but use it to receive signals from the video cassette recorder.

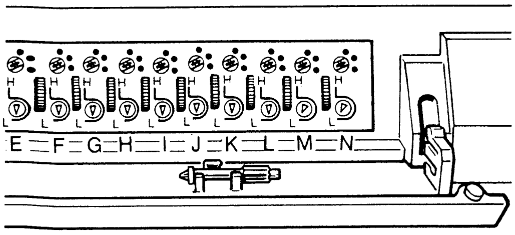
PRESETTING PROCEDURE



1 Press the POWER switch.

2 Push down to open and expose the controls.

3 Select the channel position to be preset.



Presetting compartment

Band select switch

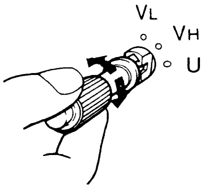
Tuning indicator

Tuning knob

Tuning aid

4 Using the supplied tuning aid, set the band select switch having the same letter as the selected channel to one of these three positions:

VHF 2 through 6 channels	set to VL
VHF 7 through 13 channels	set to VH
UHF 14 through 83 channels ..	set to U



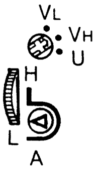
5 Turn the tuning knob until the desired station is properly tuned in. The tuning indicator provides a visual indication of the approximate location you are tuned to within the selected band.

towards L .... for lower-numbered channels
towards H .... for higher-numbered channels

Repeat steps 3 through 5 for all the channel positions to be preset.

TO CANCEL INACTIVE CHANNELS

To cancel an inactive channel, turn the corresponding tuning knob until the tuning indicator is as far to the left as possible.



When you press the CHANNEL scan buttons these unused channels will be skipped.
To again preset the cancelled channel, follow the presetting procedure.

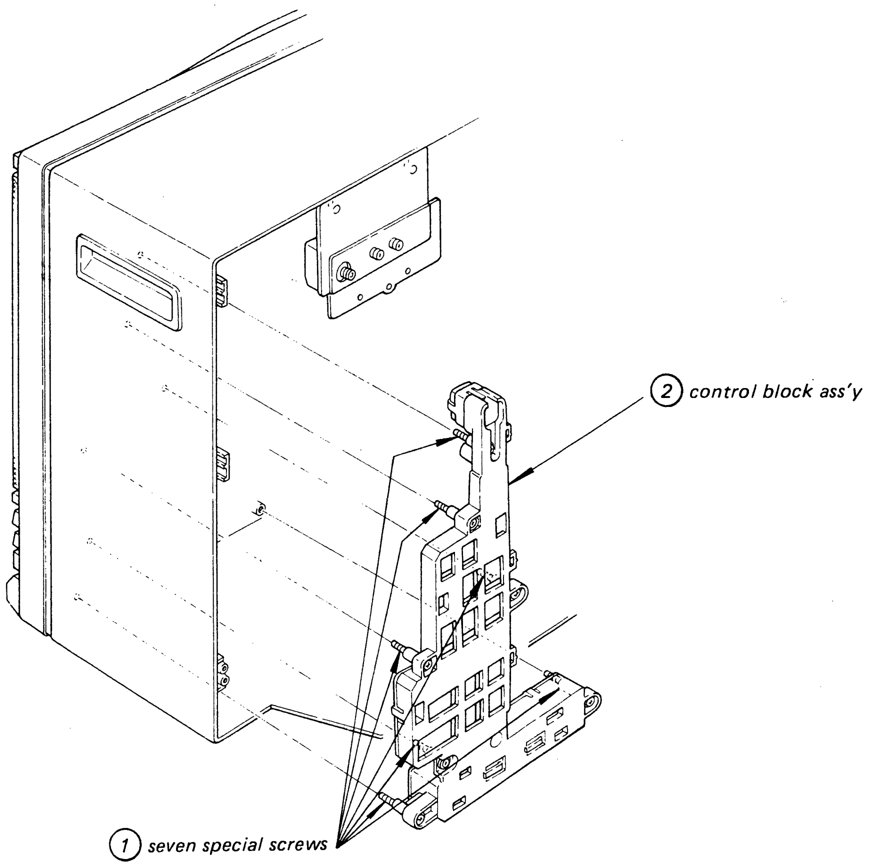
Note
To use your TV set with a cable television system, contact a representative of the cable company for instructions regarding channel selection.

SECTION 2

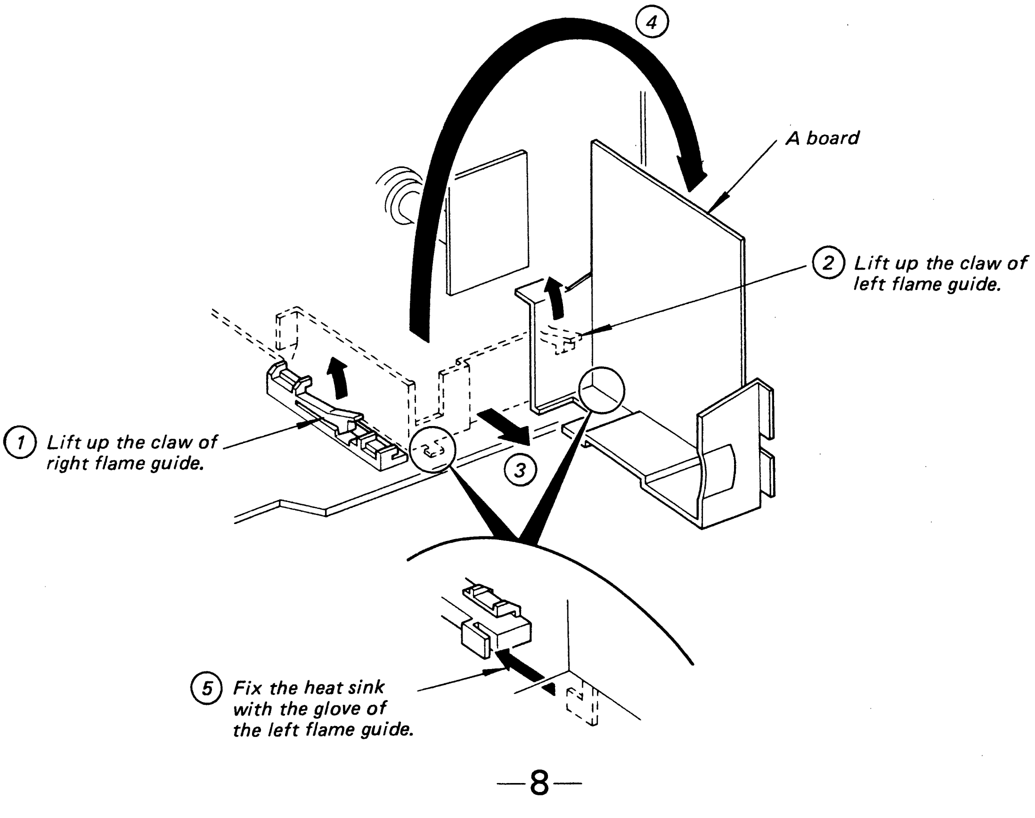
DISASSEMBLY (AND REPLACEMENT)

2-1. CONTROL BLOCK REMOVAL (FOR CHECKING IT UP)

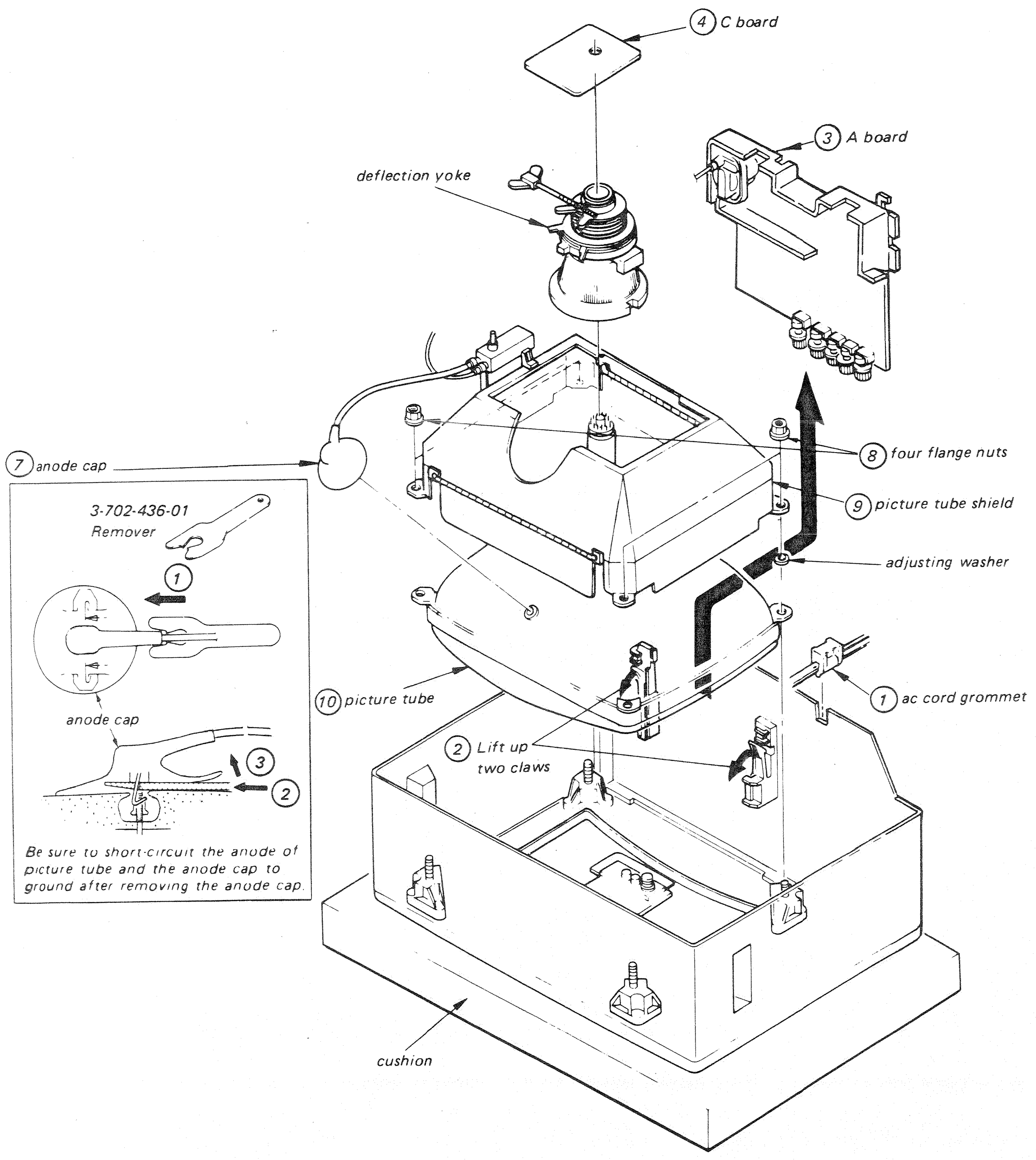
Note: Follow the disassembly procedure in the numerical order given.


② control block ass'y
① seven special screws

2-2. A BOARD REMOVAL (FOR CHECKING IT UP)


④
A board
② Lift up the claw of left flame guide.
① Lift up the claw of right flame guide.
③
⑤ Fix the heat sink with the glove of the left flame guide.

2-3. PICTURE TUBE REMOVAL


④ C board
③ A board
deflection yoke
⑦ anode cap
⑧ four flange nuts
⑨ picture tube shield
adjusting washer
3-702-436-01
Remover
①
anode cap
③
②
⑩ picture tube
① ac cord grommet
② Lift up two claws
cushion

Be sure to short-circuit the anode of picture tube and the anode cap to ground after removing the anode cap.

MEMO

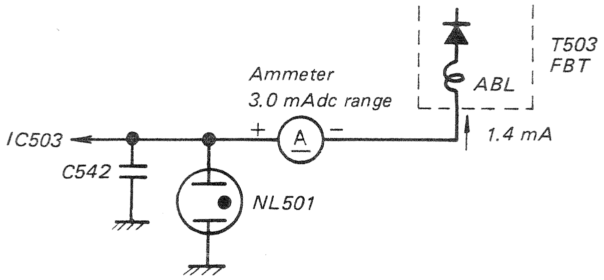
SECTION 3
SAFETY RELATED ADJUSTMENT

3-1. A BOARD ADJUSTMENT

◪ *R582, R583 ADJUSTMENT*

(1) When replacing the following components, make this adjustment.
R582, R583, IC501, IC503, R558

1. *Disengage ABL terminal of FBT from the foil and connect the ammeter as shown.*
2. *Supply 135 V to the TP91 (135 V) from a regulated-dc power supply (A).*
3. *Measure the ABL terminal current by the ammeter as shown.*



(2) Measurement Procedure

The connection Point for R560 and connector A-10 is the hold down check point Ⓐ.

1. *Apply 135 V to +B point from an external DC power supply.*
2. *Receive a stable signal such as an all-white signal and adjust ABL current to 1.4 mA with PICTURE, BRIGHT, etc. VRs.*
3. *Confirm that there is more than 12.15 V at the hold down check point Ⓐ.*
4. *Confirm that the HV HOLD DOWN CIRCUIT operats and that raster disappears when $16.80^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply.*

   Note: When raster disappears, cut input voltage and applied voltage immediately.
5. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when $16.21^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply.*

   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.
6. *Receive a stable signal such as a dot signal and adjust ABL current for 85μA with PICTURE and BRIGHT VRs.*
7. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when $17.21^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply.*
8. *Confirm that the HV HOLD DOWN CIRCUIT operates and raster disappears when $18.27^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply.*
9. *Adjust R582, R583 so that steps 3, 4, 6 and 7 are satisfied.*

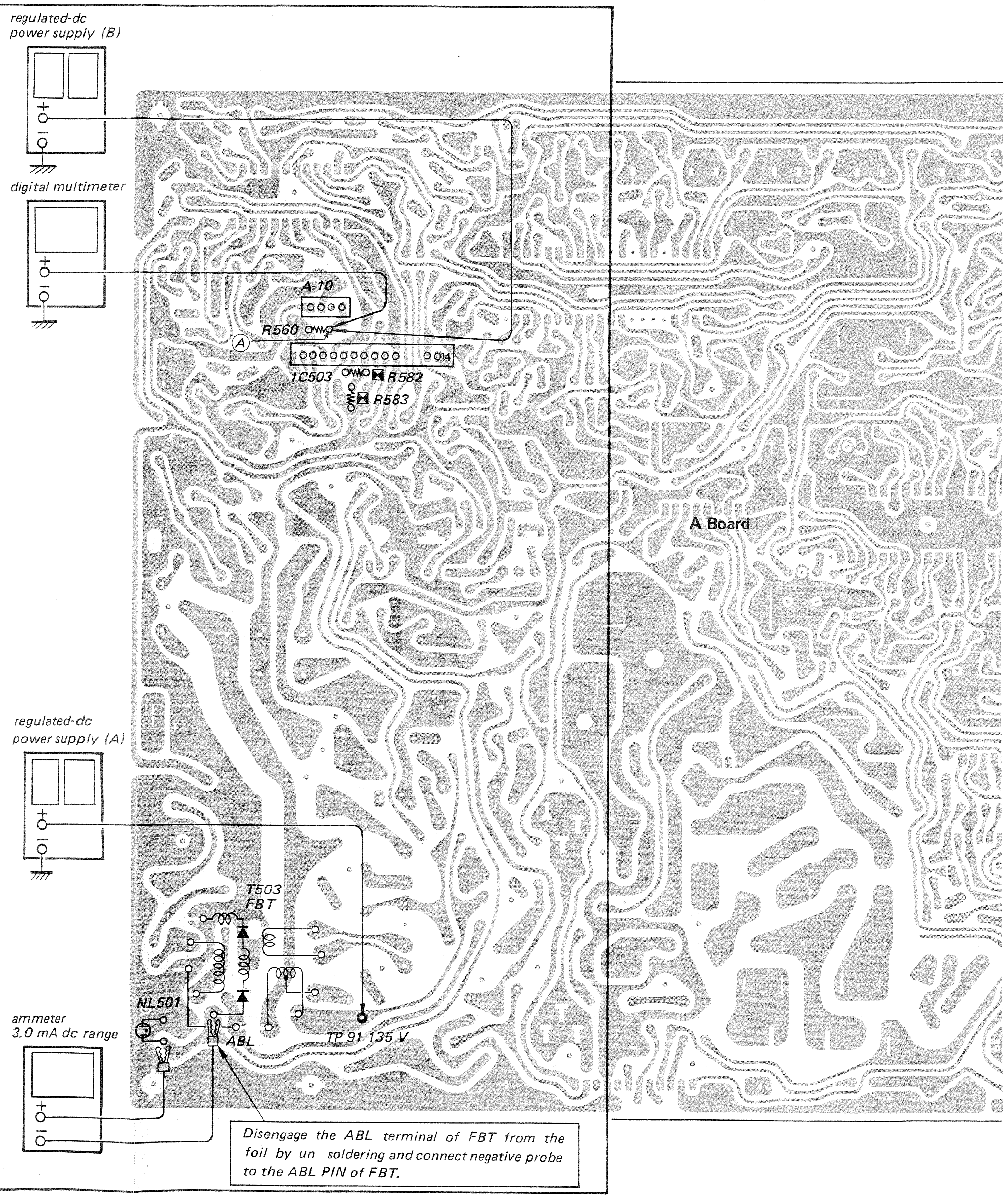
(3) After Adjustment

1. *Remove external DC power supply used for +B power supply and DC voltmeter.*
2. *Solder FBT ABL pin.*

CHECKING AFTER H.V.R. REPLACEMENT

*After replacing H.V.R., * confirm that there is more than 12.15 V on HOLD DOWN check point Ⓐ.*

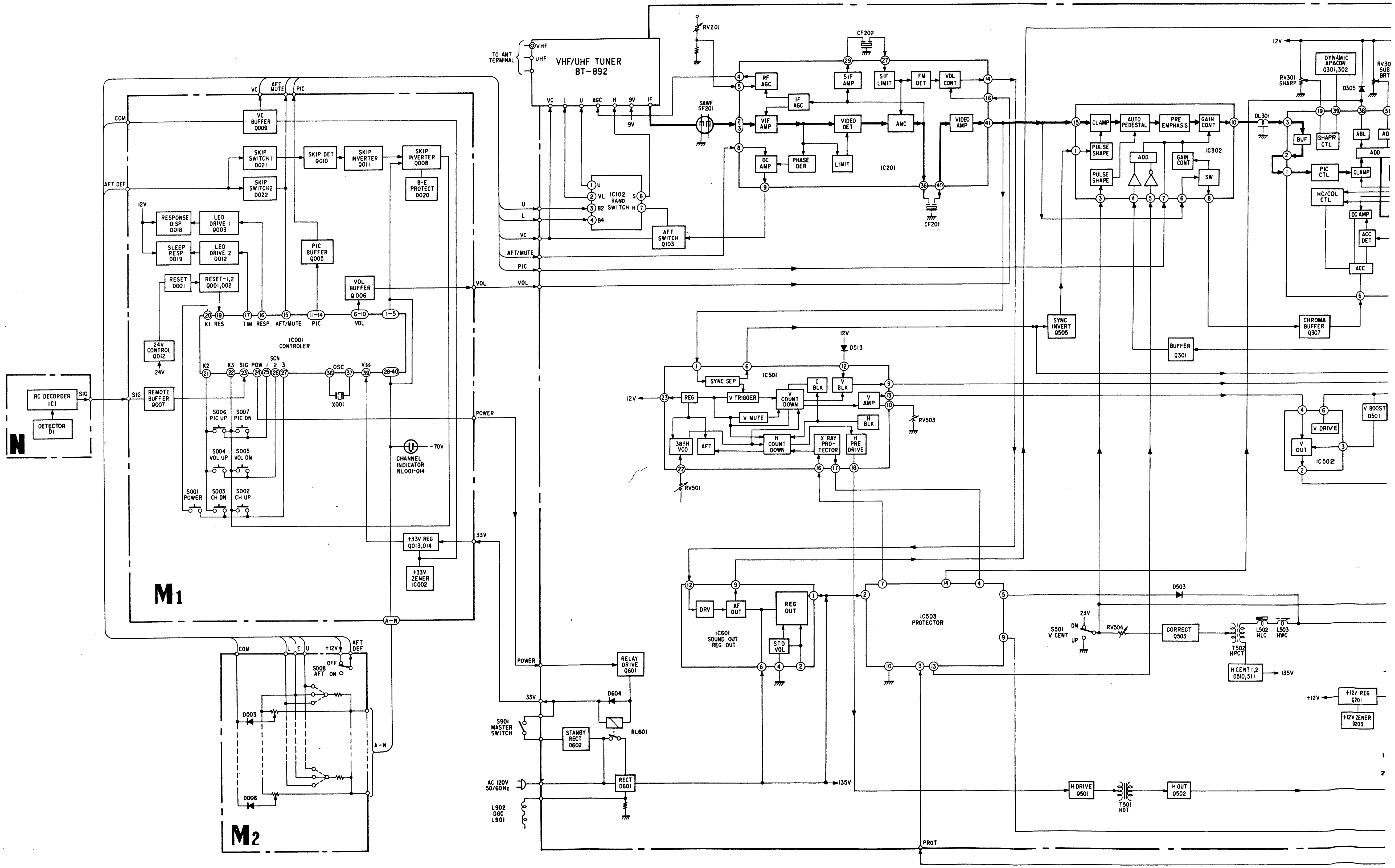
** This check is to be performed when H.V.R. only is replaced, and has no relation to the HV hold down circuit readjustment for replacement of parts marked ◪.*

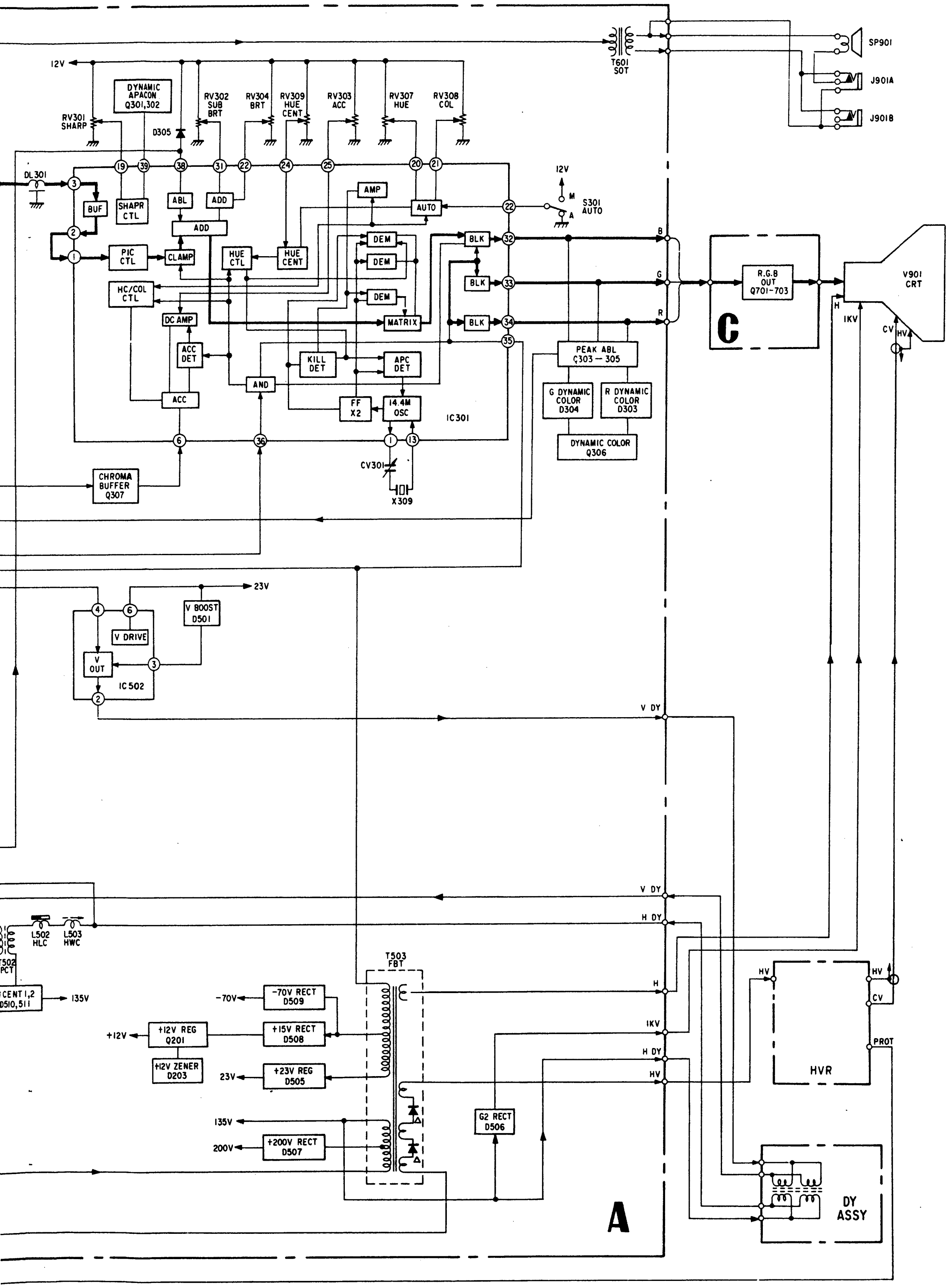


Disengage the ABL terminal of FBT from the foil by un soldering and connect negative probe to the ABL PIN of FBT.

SECTION 4
DIAGRAMS AND CIRCUIT BOARDS LOCATION

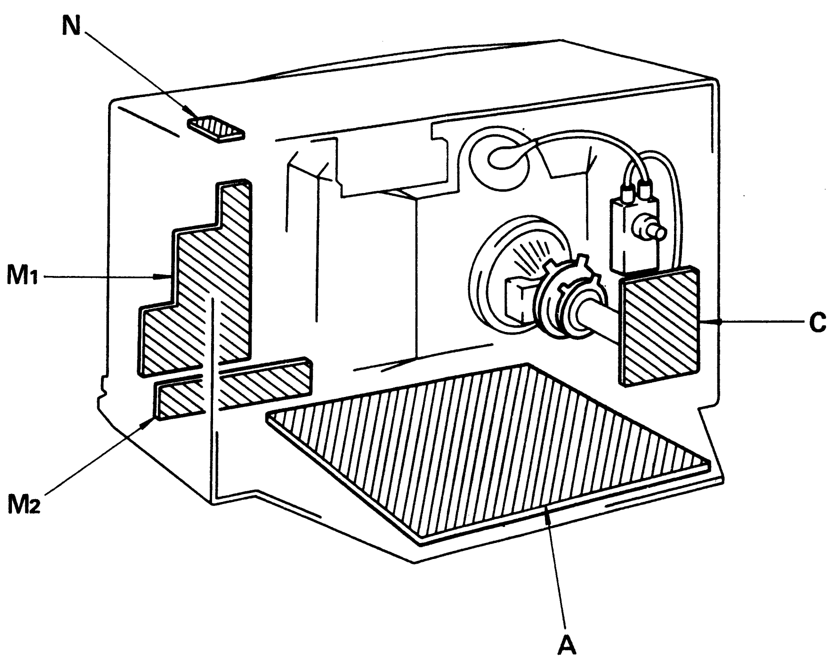
4-1. BLOCK DIAGRAM


N
RC DECORDER IC1
DETECTOR D1
SIG
M1
REMOTE BUFFER Q007
24V CONTROL Q012
24V
12V
RESPONSE DISP D018
LED DRIVE 1 Q003
SLEEP RESP D019
LED DRIVE 2 Q012
RESET D001
RESET-1,2 Q001,002
VC BUFFER Q009
SKIP SWITCH 1 D021
SKIP SWITCH2 D022
SKIP DET Q010
SKIP INVERTER Q011
SKIP INVERTER Q008
B-E PROTECT D020
PIC BUFFER Q005
VOL BUFFER Q006
IC001 CONTROLER
COM
AFT DEF
VC
AFT MUTE
PIC
VOL
POWER
33V
K1 RES
TIM RESP AFT/MUTE PIC VOL
K2 K3 SIG POW SCN 1 2 3
OSC Vss
X001
S006 PIC UP
S007 PIC DN
S004 VOL UP
S005 VOL DN
S001 POWER
S003 CH DN
S002 CH UP
CHANNEL INDICATOR NL001-014
-70V
+33V REG Q013,014
+33V ZENER IC002
A-N
M2
COM L E U +12V AFT DEF
S008 AFT OFF ON
D003
D006
TO ANT TERMINAL
VHF
UHF
VHF/UHF TUNER BT-892
VC L U AGC H 9V IF
9V
IC102 BAND SWITCH
VL B2 B4
AFT SWITCH Q103
AFT/MUTE
RV201
SAWF SF201
CF202
RF AGC
IF AGC
VIF AMP
DC AMP
PHASE DET
LIMIT
VIDEO DET
ANC
SIF AMP
SIF LIMIT
FM DET
VOL CONT
VIDEO AMP
IC201
CF201
CLAMP
AUTO PEDESTAL
PRE EMPHASIS
GAIN CONT
PULSE SHAPE
PULSE SHAPE
ADD
GAIN CONT
SW
IC302
DL301
BUF
SHAPR CTL
PIC CTL
CLAMP
HC/COL CTL
DC AMP
ACC DET
ACC
ABL
ADD
DYNAMIC APACON Q301,302
RV301 SHARP
D305
12V
CHROMA BUFFER Q307
BUFFER Q301
SYNC INVERT Q505
D513
IC501
SYNC SEP
REG
V TRIGGER
V COUNT DOWN
V MUTE
C BLK
V BLK
V AMP
H BLK
384H VCO
AFT
H COUNT DOWN
X RAY PROTECTOR
H PRE DRIVE
RV501
RV503
V BOOST D501
V DRIVE
V OUT
IC502
IC601 SOUND OUT REG OUT
DRV
AF OUT
REG OUT
STD VOL
IC503 PROTECTOR
D503
S501 V CENT DN UP
23V
RV504
CORRECT Q503
L502 HLC
L503 HWC
T502 HPCT
H CENT 1,2 D510,511
135V
+12V REG Q201
+12V ZENER D203
+12V
RELAY DRIVE Q601
D604
RL601
S901 MASTER SWITCH
STANBY RECT D602
RECT D601
AC 120V 50/60Hz
L902 DGC L901
135V
H DRIVE Q501
T501 HDT
H OUT Q502
PROT



12V
DYNAMIC APACON Q301,302
RV301 SHARP
RV302 SUB BRT
RV304 BRT
RV309 HUE CENT
RV303 ACC
RV307 HUE
RV308 COL
D305
DL301
BUF
SHAPR CTL
ABL
ADD
AMP
AUTO
DEM
MATRIX
BLK
PIC CTL
CLAMP
HUE CTL
HUE CENT
HC/COL CTL
DC AMP
ACC DET
ACC
AND
KILL DET
APC DET
FF X2
14.4M OSC
IC301
CV301
X309
CHROMA BUFFER Q307
S301 AUTO
M
A
T601 SOT
SP901
J901A
J901B
B
G
R
R.G.B OUT Q701-703
C
V901 CRT
H
IKV
CV
HV
PEAK ABL Q303 – 305
G DYNAMIC COLOR D304
R DYNAMIC COLOR D303
DYNAMIC COLOR Q306
23V
V BOOST D501
V DRIVE
V OUT
IC502
V DY
H DY
L502 HLC
L503 HWC
T502 PCT
CENT 1,2 D510,511
135V
T503 FBT
-70V
-70V RECT D509
+12V
+12V REG Q201
+15V RECT D508
+12V ZENER D203
23V
+23V REG D505
135V
200V
+200V RECT D507
G2 RECT D506
HVR
PROT
DY ASSY
A

4-2. CIRCUIT BOARDS LOCATION



4-3. SCHEMATIC DIAGRAM

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

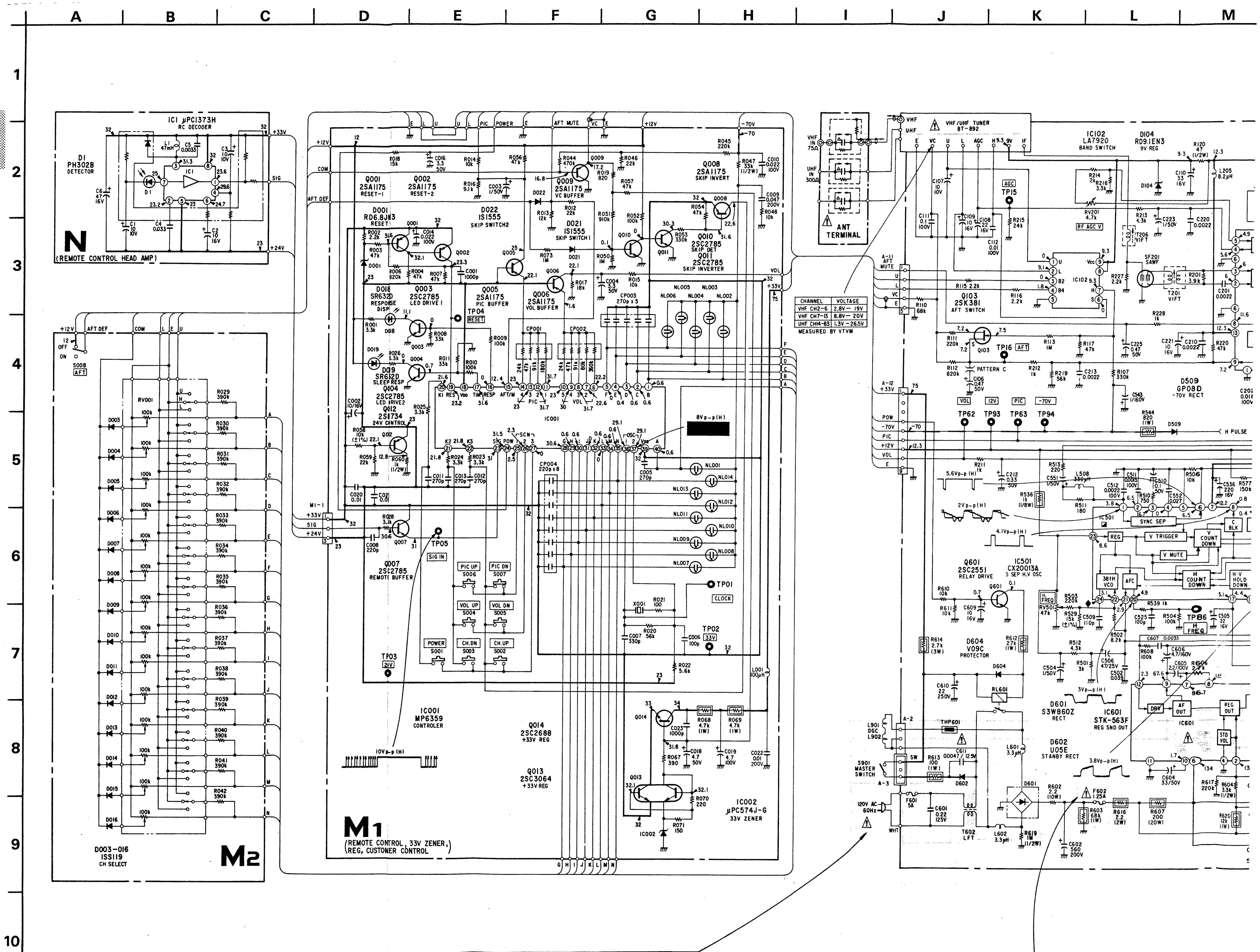
Note:

- All capacitors are in μF unless otherwise noted. pF: $\mu\mu$F 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼ W unless otherwise noted. k: 1000 Ω, M: 1000 kΩ.
- ▭ : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation.
- The components identified by ⧗ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪ , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⧗ and repeat the adjustment until the specified value is achieved. (Refer to R582 and R583 adjustment on page 11.)

  When replacing the part in below table, be sure to perform the related adjustment.

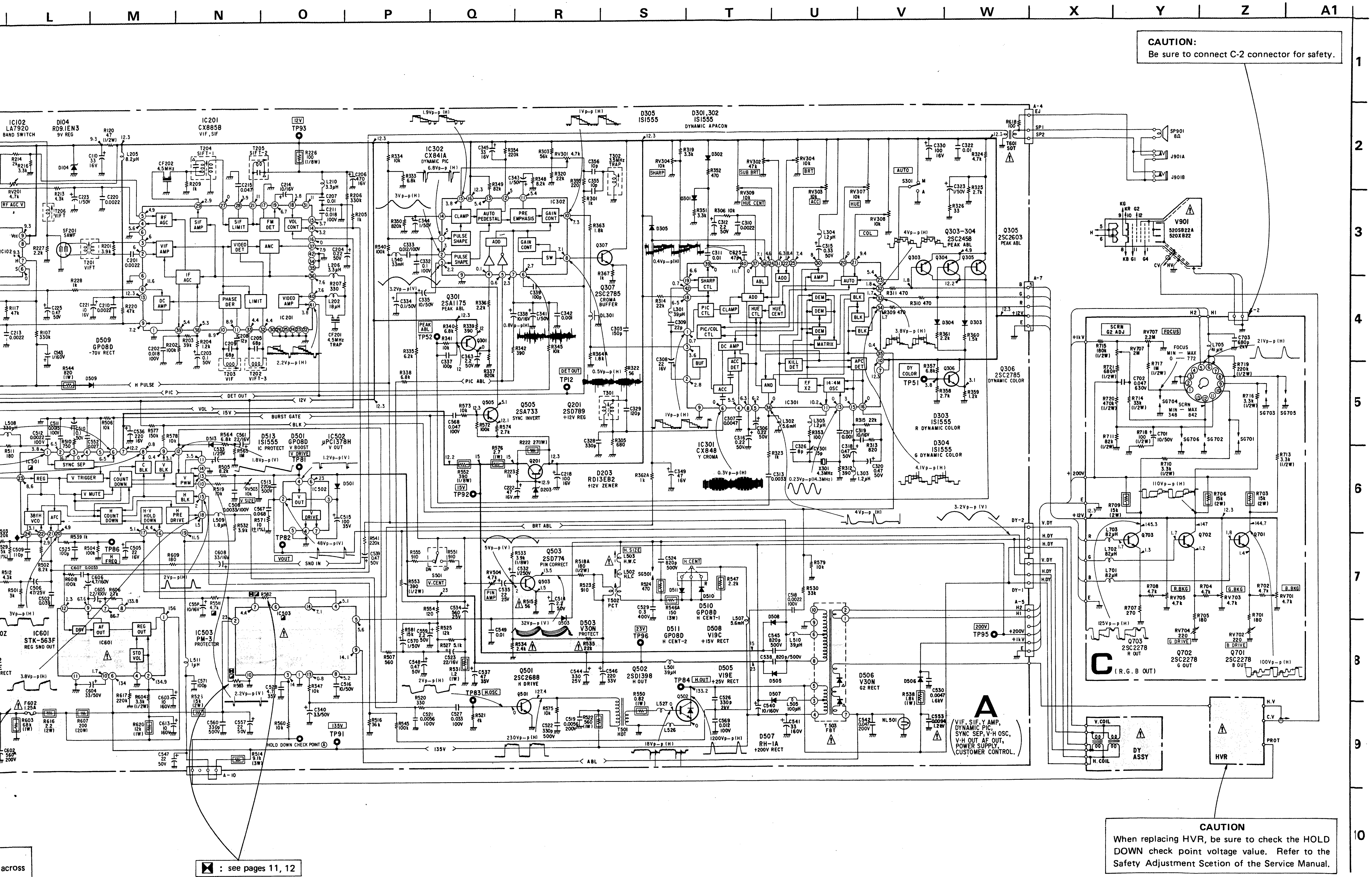
Part replaced (◪)	Adjustment (⧗)
IC501, IC503, R558, R582, R583	R582, R583 adjustment

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in V.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- ——— : B + bus.
- – – – : B – bus.
- Voltage variations may be noted due to normal production tolerances.
- ▭ : adjustment for repair.
- The hold down check point is the cross-point of R560 and A-10 connector.
- Do not touch pin ㉔ of IC501 marked ◆ on A board with probe of digital multimeter. It will result in off position of the set.


A
B
C
D
E
F
G
H
I
J
K
L
M
1
2
3
4
5
6
7
8
9
10
IC1 μPC1373H
RC DECODER
D1
PH302B
DETECTOR
N
(REMOTE CONTROL HEAD AMP)
SIG
+33V
+24V
Q001
2SA1175
RESET-1
Q002
2SA1175
RESET-2
D001
RD6.8JN3
RESET
D022
1S1555
SKIP SWITCH2
D021
1S1555
SKIP SWITCH1
Q009
2SA1175
VC BUFFER
Q008
2SA1175
SKIP INVERT
Q010
2SC2785
SKIP DET
Q011
2SC2785
SKIP INVERTER
D018
SR632D
RESPONSE DISP
Q003
2SC2785
LED DRIVE 1
Q005
2SA1175
PIC BUFFER
Q006
2SA1175
VOL BUFFER
D019
SR632D
SLEEP RESP
Q004
2SC2785
LED DRIVE2
Q012
2SB1734
24V CNTROL
IC001
TP04
RESET
TP05
SIG IN
Q007
2SC2785
REMOTE BUFFER
TP03
21V
TP01
CLOCK
TP02
33V
8Vp-p(H)
IC001
MP6359
CONTROLER
10Vp-p(H)
Q014
2SC2688
+33V REG
Q013
2SC3064
+33V REG
IC002
μPC574J-G
33V ZENER
M1
(REMOTE CONTROL, 33V ZENER, REG, CUSTOMER CONTROL)
RV001
D003-016
1SS119
CH SELECT
M2
S008
AFT
POWER
S001
CH.DN
S003
CH.UP
S002
VOL UP
S004
VOL DN
S005
PIC UP
S006
PIC DN
S007
VHF/UHF TUNER
BT-892
ANT TERMINAL
CHANNEL
VOLTAGE
VHF CH2-6 2.8V-19V
VHF CH7-13 8.8V-20V
UHF CH14-83 1.3V-26.5V
MEASURED BY VTVM
IC102
LA7920
BAND SWITCH
D104
RD9.1EN3
9V REG
Q103
2SK381
AFT SWITCH
TP15
AGC
TP16
AFT
SF201
SAWF
T201
VIFT
TP62
TP93
TP63
TP94
VOL
12V
PIC
-70V
D509
GP08D
-70V RECT
H PULSE
IC501
CX20013A
S SEP H,V OSC
SYNC SEP
V TRIGGER
V COUNT DOWN
V MUTE
H COUNT DOWN
H-V HOLD DOWN
381H VCO
AFC
Q601
2SC2551
RELAY DRIVE
D604
V09C
PROTECTOR
RL601
D601
S3WB60Z
RECT
D602
U05E
STANBY RECT
IC601
STK-563F
REG SND OUT
THP601
S901
MASTER SWITCH
120V AC
60Hz
F601
5A
F602
1.25A
T602
LFT
TP86
H FREQ
2Vp-p(H)
4.1Vp-p(H)
5.6Vp-p(H)
3Vp-p(H)
3.8Vp-p(H)

CAUTION:
This set is equipped with a polarized AC power cord plug (one blade of the plug is wider than the other), be sure to use it having the specified part number and connect it as shown in this diagram.

CAUTION:
When taking a broken fuse (F602) off, discharge across C602 to avoid shock hazard.



L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
A1
1
2
3
4
5
6
7
8
9
10
IC102 LA7920 BAND SWITCH
D104 RD9.1EN3 9V REG
IC201 CX885B VIF, SIF
12V TP93
IC302 CX841A DYNAMIC PIC
D305 1S1555
D301,302 1S1555 DYNAMIC APACON
Q301 2SA1175 PEAK ABL
Q307 2SC2785 CHROMA BUFFER
Q303-304 2SC2458 PEAK ABL
Q305 2SC2603 PEAK ABL
Q306 2SC2785 DYNAMIC COLOR
D303 1S1555 R DYNAMIC COLOR
D304 1S1555 G DYNAMIC COLOR
IC301 CX848 Y CROMA
Q505 2SA733 SYNC INVERT
Q201 2SD789 +12V REG
D203 RD13EB2 +12V ZENER
D509 GP08D -70V RECT
D513 1S1555 IC PROTECT
D501 GP08D V BOOST
IC502 μPC1378H V OUT
IC601 STK-563F REG SND OUT
IC503 PM-3 PROTECTOR
Q503 2SD774 PIN CORRECT
D503 V30N PROTECT
Q501 2SC2688 H DRIVE
Q502 2SD1398 H OUT
D511 GP08D H CENT-2
D510 GP08D H CENT-1
D508 V19C +15V RECT
D505 V19E +25V RECT
D506 V30N G2 RECT
D507 RH-1A +200V RECT
T503 FBT
V901 520SB22A 520XB22
Q703 2SC2278 R OUT
Q702 2SC2278 G OUT
Q701 2SC2278 B OUT
C (R.G.B OUT)
DY ASSY
HVR
A (VIF, SIF, Y AMP, DYNAMIC PIC, SYNC SEP, V·H OSC, V·H OUT AF OUT, POWER SUPPLY, CUSTOMER CONTROL.)
HOLD DOWN CHECK POINT Ⓐ
TP91
TP95
TP84
TP83
TP96
TP92
TP81
TP82
TP86
TP52
TP51
TP12
SP901 8Ω
J901A
J901B

CAUTION:
Be sure to connect C-2 connector for safety.

CAUTION
When replacing HVR, be sure to check the HOLD DOWN check point voltage value. Refer to the Safety Adjustment Scetion of the Service Manual.

across

⧓ : see pages 11, 12

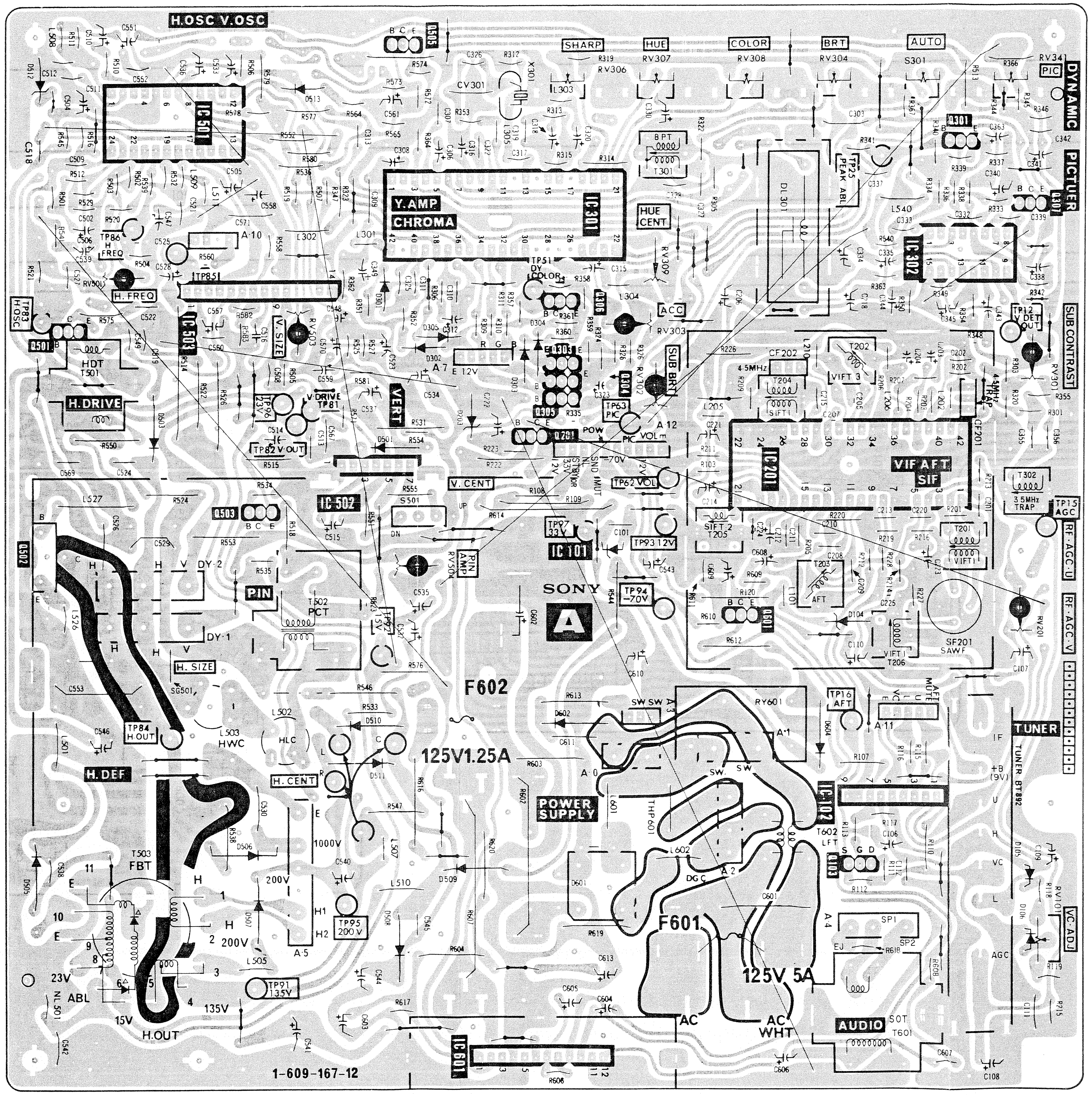
4-4. PRINTED WIRING BOARD

– Conductor Side –

A (VIF, SIF, Y AMP, DYNAMIC PIC, SYNC SEP, V · H OSC, V · H OUT, AF OUT, POWER SUPPLY, CUSTOMER CONTROL.)

– A Board –

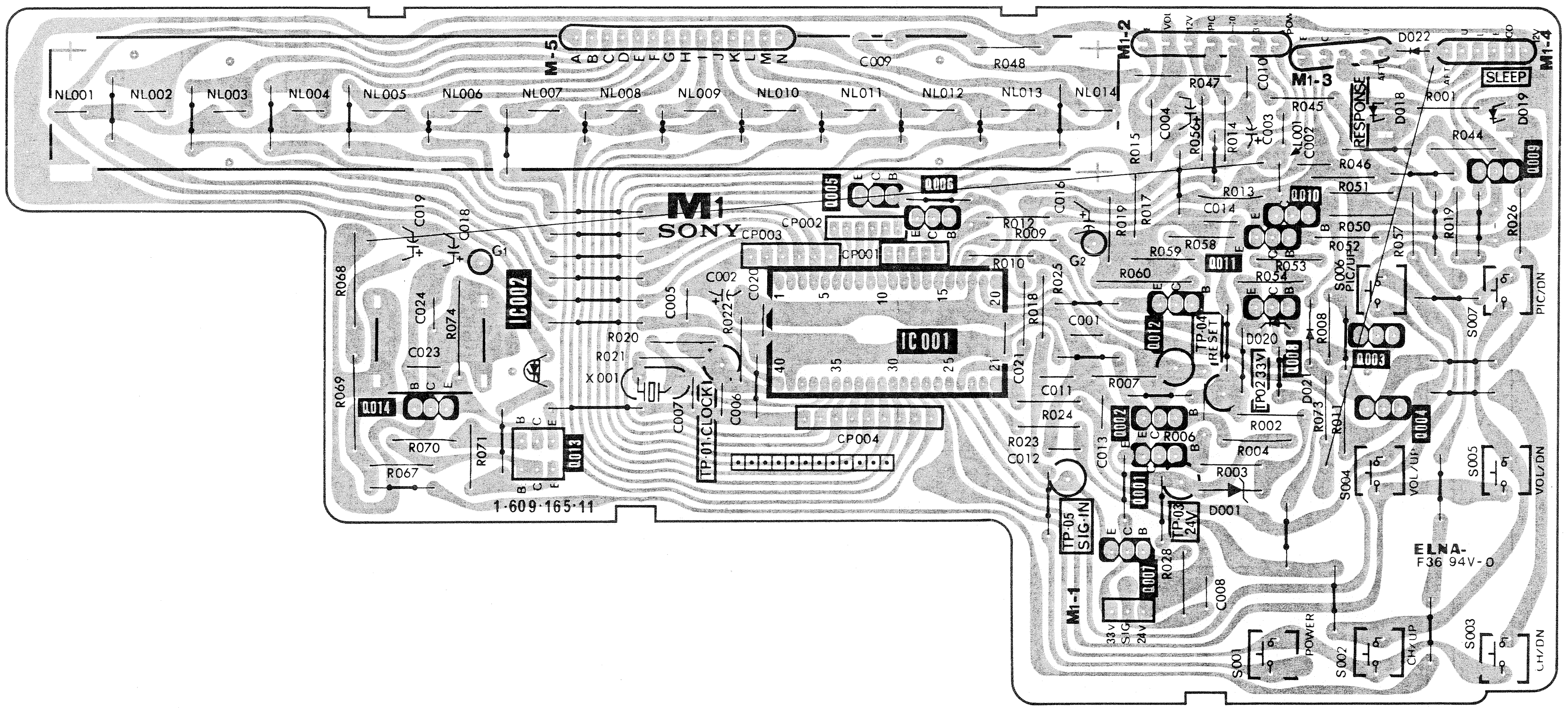
Q · IC	D	ADJ-TP
505		
	513 512	RV306,308 RV307, 304
IC501		
301		
		TP25
307 IC301		
		TP86
IC302		RV309
		TP85
	301	RV501 TP51
IC503 306		
		TP83,RV303
501		RV503,TP12
303	305 302 304	
304 305	303	RV301
		RV302
		TP63
		TP96, 81
	503 203	TP82
201	501	
IC502		
IC201		TP62
503		TP97,15 TP93
502		RV504 RV202
		TP94
601		RV201
	104	
		TP92
	602	TP16
	604 510 511	TP84
IC102		
103	506	
	509	
	505 601 507	TP95
	508	
		TP91
IC601		


A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
1
2
3
4
5
6
7
8
9
10
H.OSC V.OSC
IC501
Y.AMP
CHROMA
IC301
SHARP
HUE
COLOR
BRT
AUTO
RV306
RV307
RV308
RV304
S301
CV301
DYNAMIC
PIC
PICTURE
IC302
DL301
HUE CENT
PEAK ABL
BPT
T301
H.FREQ
TP86 H FREQ
TP85
TP83 H OSC
Q501
HDT T501
H.DRIVE
IC503
V.SIZE
VERT
V DRIVE TP81
TP96 23V
TP82 V.OUT
IC502
V.CENT
S501
PIN AMP
ACC
SUB BRT
SUB CONTRAST
IC201
VIF AFT SIF
CF202
CF201
T202
VIFT 3
T204
SIFT 1
T302
3.5MHz TRAP
4.5MHz
TP15 AGC
RF-AGC U
RF-AGC V
T201 VIFT
T203 AFT
SIFT 2 T205
SF201 SAWF
VIFT 1 T206
TP62 VOL
TP97 33V
IC101
TP93 12V
TP94 -70V
SONY
A
Q502
DY-2
DY-1
PIN
T502 PCT
H. SIZE
SG501
H.DEF
TP84 H OUT
L503 HWC
HLC
H. CENT
F602
125V1.25A
POWER SUPPLY
THP601
RY601
TP16 AFT
TUNER
TUNER BT892
IC102
T602 LFT
Q103
VC ADJ
F601
125V 5A
AC
AC WHT
AUDIO
T601
T503 FBT
H.OUT
NL501
23V
ABL
15V
135V
200V
1000V
TP95 200V
TP91 135V
IC601
1-609-167-12

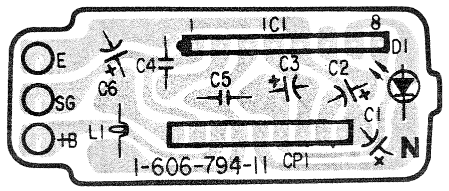
M1 (REMOTE CONTROL, 33V ZENER, REG, CUSTOMER CONTROL) N [REMOTE CONTROL HEAD AMP]

– M1 Board –

	A	B	C	D	E	F	G	H	I	J	K	L
Q·IC				014	IC002 013		005 IC001	006	012 002 001 007	010 011 008	003 004	009
D										020 021 001	018 022 019	
TP						01		05	04 02 03			


NL001
NL002
NL003
NL004
NL005
NL006
NL007
NL008
NL009
NL010
NL011
NL012
NL013
NL014
M-5
M1-2
M1-3
M1-4
M1-1
M1
SONY
IC001
IC002
CP001
CP002
CP003
CP004
Q005
Q006
Q010
Q011
Q012
Q001
Q002
Q003
Q004
Q007
Q009
Q013
Q014
SLEEP
RESPONSE
TP-01 CLOCK
TP-02 33V
TP-03 24V
TP-04 RESET
TP-05 SIG-IN
X001
G1
G2
D001
D018
D019
D020
D021
D022
S001 POWER
S002 CH+/UP
S003 CH/DN
S004 VOL/UP
S005 VOL/DN
S006 PIC/UP
S007 PIC/DN
ELNA-
F36 94V-0
1-609-165-11

– N Board –


E
SG
+B
IC1
1
8
D1
C1
C2
C3
C4
C5
C6
L1
CP1
N
1-606-794-11

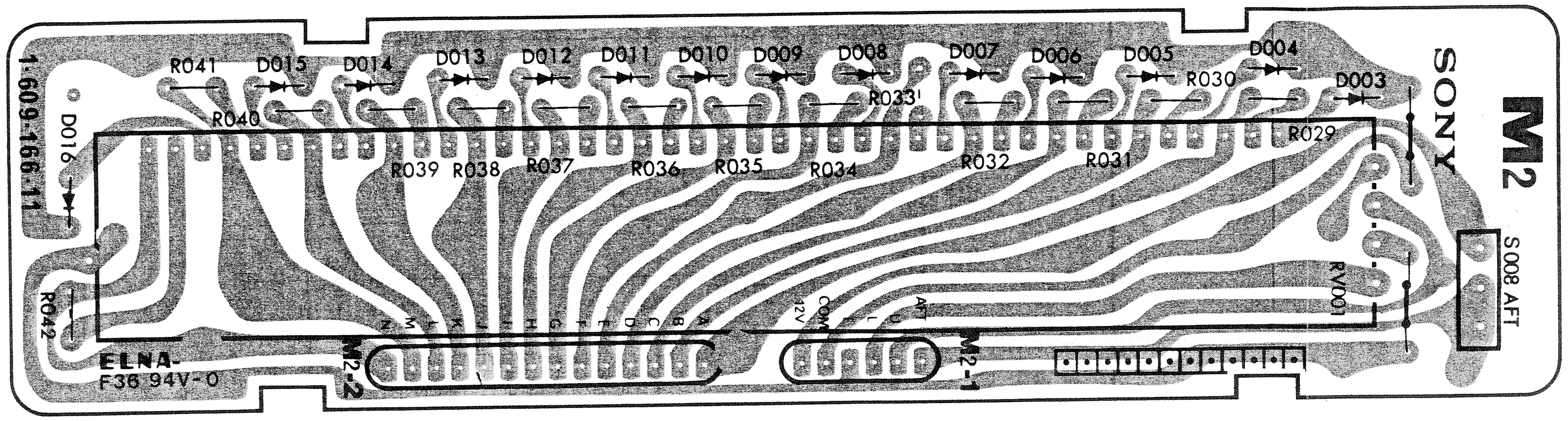
M2 [CH SELECT]

C [R·G·B OUT]

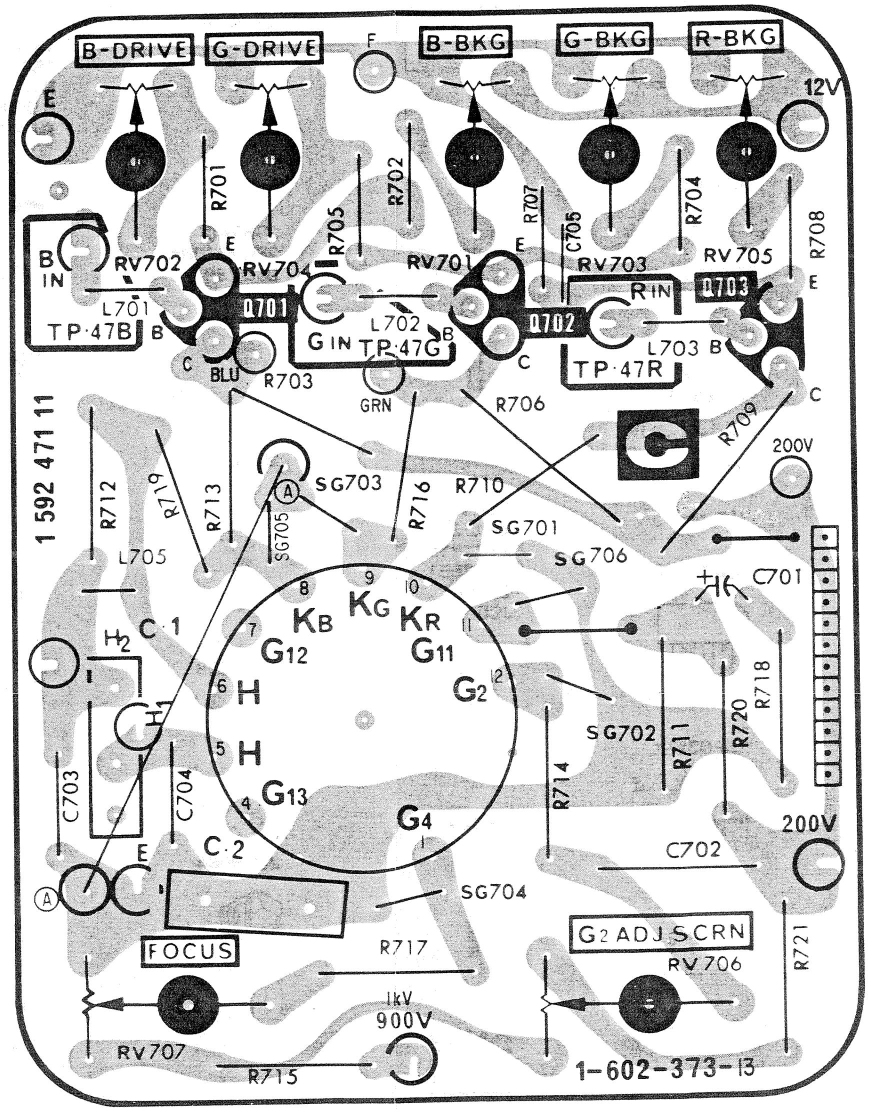
A B C D E F G H I J K L M N O

1 2 3 4 5 6 7 8 9 10

– M2 Board –

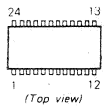

1-609-166-11
D016
R041
D015
D014
D013
D012
D011
D010
D009
D008
D007
D006
D005
D004
D003
R040
R033
R030
R029
R039
R038
R037
R036
R035
R034
R032
R031
R042
RV001
S008 AFT
SONY
M2
ELNA-
F36 94V-0
M2-2
M2-1
12V
COM
AFT

– C Board –

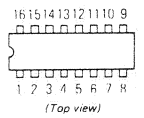

B-DRIVE
G-DRIVE
F
B-BKG
G-BKG
R-BKG
E
12V
R701
R702
R705
R707
C706
R704
R708
B IN
RV702
RV704
RV701
RV703
RV705
L701
Q701
L702
Q702
R IN
Q703
TP·47B
B
C
E
BLU
R703
G IN
TP·47G
GRN
TP·47R
L703
R706
R709
C
1 592 471 11
R712
R719
R713
SG705
SG703
R716
R710
SG701
SG706
200V
L705
C701
H2
C·1
KB
KG
KR
G12
G11
G2
H
H
G13
G4
H1
SG702
R711
R720
R718
C703
C704
R714
C·2
E
C702
200V
SG704
FOCUS
R717
G2 ADJ SCRN
RV706
R721
1kV
900V
RV707
R715
1-602-373-13

4-5. SEMICONDUCTORS

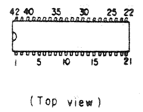
CX20013A


24
13
1
12
(Top view)

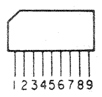
CX841A


16 15 14 13 12 11 10 9
1 2 3 4 5 6 7 8
(Top view)

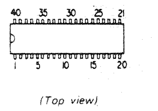
CX848
CX885B


42 40 35 30 25 22
1 5 10 15 21
(Top view)

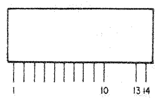
LA7920



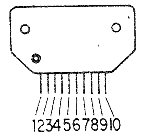
MP6359L


40 35 30 25 21
1 5 10 15 20
(Top view)

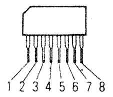
PM-3



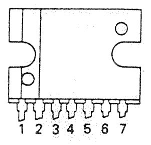
STK563F


1 2 3 4 5 6 7 8 9 10

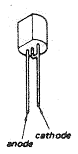
μPC1373H



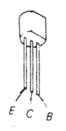
μPC1378H-L



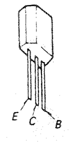
μPC574J-G


cathode
anode

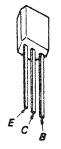
2SA1015
2SA733
2SC1815
2SC2551
2SC945
JC501



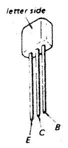
2SA1026



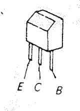
2SA1048
2SA1115
2SC2458
2SC2603



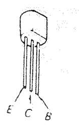
2SA1175
2SC2785


letter side
E C B

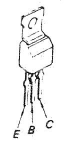
2SB734
2SD774



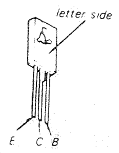
2SB740
2SC2610BK
2SD789



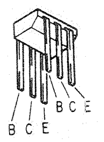
2SC2278



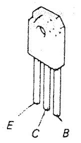
2SC2688


letter side
E C B

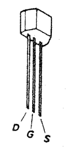
2SC3064



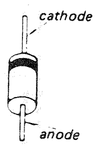
2SD1398



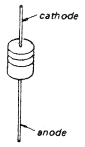
2SK381-E



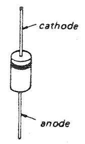
1S1555
1S2076
1S2473
1SS133
RD13E-B2
RD6.8J-N3
RD9.1E-N3


cathode
anode

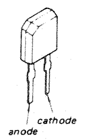
1SS119
1SS148


cathode
anode

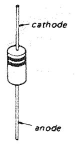
GP08D


cathode
anode

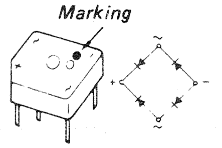
PH302B


cathode
anode

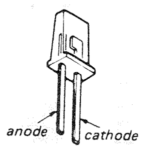
RH1A


cathode
anode

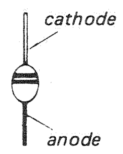
S3WB60Z



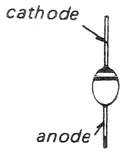
SR632D


anode
cathode

U05E
U05G

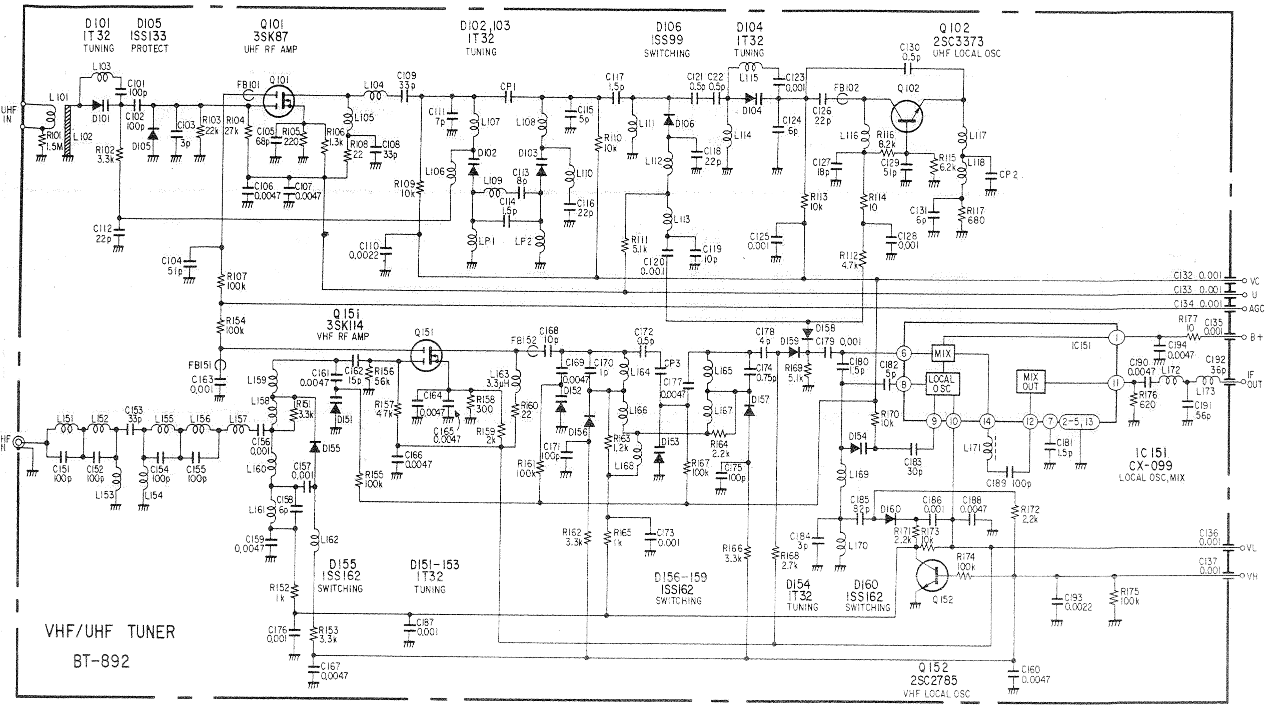

cathode
anode

V09C
V19C
V19E
V30N


cathode
anode

4-6. UHF/VHF TUNER SCHEMATIC DIAGRAM

- BT-892


D101 IT32 TUNING
D105 1SS133 PROTECT
Q101 3SK87 UHF RF AMP
D102,103 IT32 TUNING
D106 1SS99 SWITCHING
D104 IT32 TUNING
Q102 2SC3373 UHF LOCAL OSC
UHF IN
Q151 3SK114 VHF RF AMP
VHF IN
MIX
LOCAL OSC
MIX OUT
IC151 CX-099 LOCAL OSC, MIX
D155 1SS162 SWITCHING
D151-153 IT32 TUNING
D156-159 1SS162 SWITCHING
D154 IT32 TUNING
D160 1SS162 SWITCHING
Q152 2SC2785 VHF LOCAL OSC
VHF/UHF TUNER
BT-892
VC
U
AGC
B+
IF OUT
VL
VH

Note: Tuner reference numbers are not included in the Electrical Parts List.

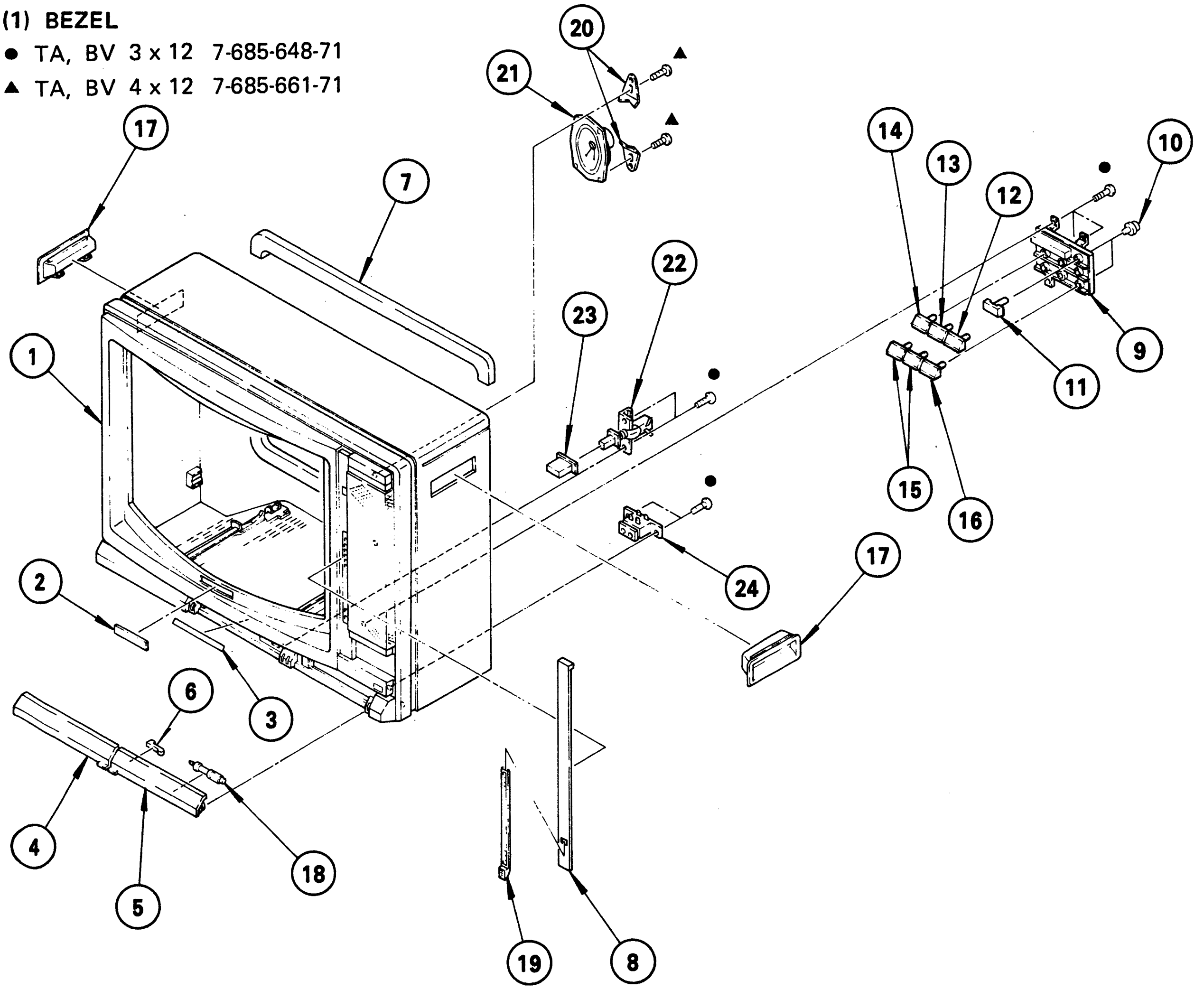
SECTION 5
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- As to the part numbered with E-, refer to the electrical parts list.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(1) BEZEL

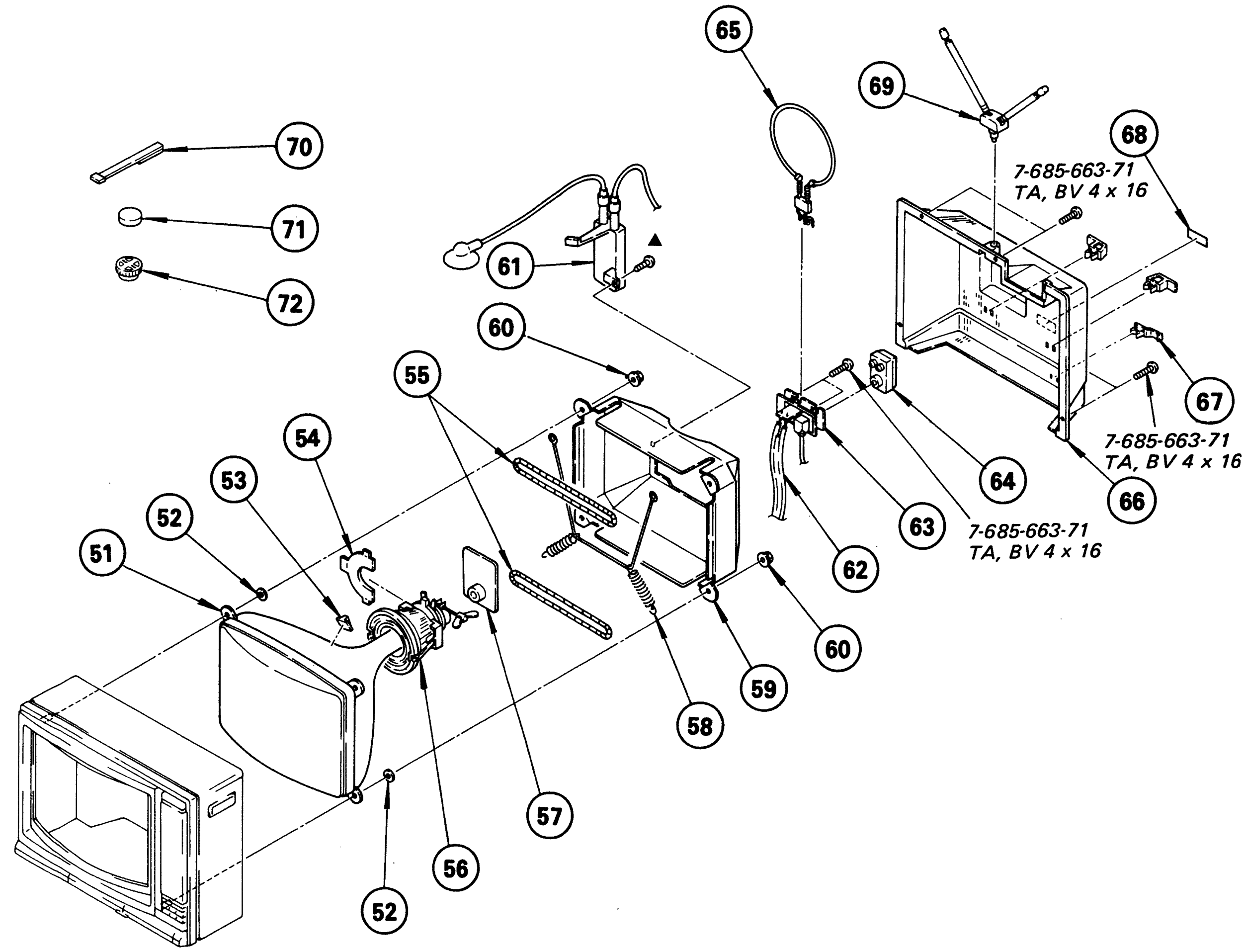
● TA, BV 3 x 12 7-685-648-71
▲ TA, BV 4 x 12 7-685-661-71



No.	Part No.	Description	Remark
1	X-4365-209-0	BEZEL ASSY (KV-1954R)	2,3,4,5
	X-4365-210-0	BEZEL ASSY (KV-1955R)	7,8,9
2	3-701-912-00	EMBLEM, SONY, (LARGE)	
3	♠:4-365-227-01	LABEL, SUB CONTROL (KV-1954R)	
	♠:4-365-227-11	LABEL, SUB CONTROL (KV-1955R)	
4	X-4365-205-1	DOOR ASSY, SUB CONTROL(KV-1954R)	
	X-4365-205-2	DOOR ASSY, SUB CONTROL(KV-1955R)	
5	X-4365-204-1	DOOR ASSY, PRESET (KV-1954R)	6
	X-4365-204-2	DOOR ASSY, PRESET (KV-1955R)	
6	4-329-109-00	KNOB, AFT	
7	4-312-539-00	CUSHION (A), BEZEL	
8	♠:X-4365-206-1	WINDOW ASSY, CHANNEL (KV-1954R)	
	♠:X-4365-206-2	WINDOW ASSY, CHANNEL (KV-1955R)	
9	X-4365-203-1	BUTTON BLOCK ASSY (KV-1954R)	10,11,12
	X-4365-203-2	BUTTON BLOCK ASSY (KV-1955R)	13,14,15 16
10	4-365-220-00	STOPPER, BUTTON	
11	4-365-234-00	BUTTON, POWER	
12	4-365-240-01	BUTTON, CHANNEL (KV-1954R)	
	4-365-240-11	BUTTON, CHANNEL (KV-1955R)	
13	4-365-241-01	BUTTON, CONTROL (KV-1954R)	
	4-365-241-11	BUTTON, CONTROL (KV-1955R)	
14	4-365-235-01	BUTTON, PICTURE (KV-1954R)	
	4-365-235-11	BUTTON, PICTURE (KV-1955R)	
15	4-365-242-01	BUTTON, CONTROL (KV-1954R)	
	4-365-242-11	BUTTON, CONTROL (KV-1955R)	
16	4-365-240-21	BUTTON, CHANNEL (KV-1954R)	
	4-365-240-31	BUTTON, CHANNEL (KV-1955R)	
17	4-363-409-11	HANDLE (KV-1954R)	
	4-363-409-21	HANDLE (KV-1955R)	
18	4-365-250-00	SCREWDRIVER, PRESET	
19	X-4365-202-0	HOLDER ASSY, LABEL	
20	♠:4-338-106-00	HOLDER, SPEAKER	
21	1-502-882-00	SPEAKER	
22	⚠.1-553-262-22	SWITCH, PUSH (POWER SWITCH)	
23	4-333-101-00	PUSH BUTTON	
24	1-507-785-00	JACK, 2-GANG	

(2) CRT

▲ TA, BV 4 x 12 7-685-661-71


65
69
68
7-685-663-71
TA, BV 4 x 16
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▲
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7-685-663-71
TA, BV 4 x 16
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7-685-663-71
TA, BV 4 x 16
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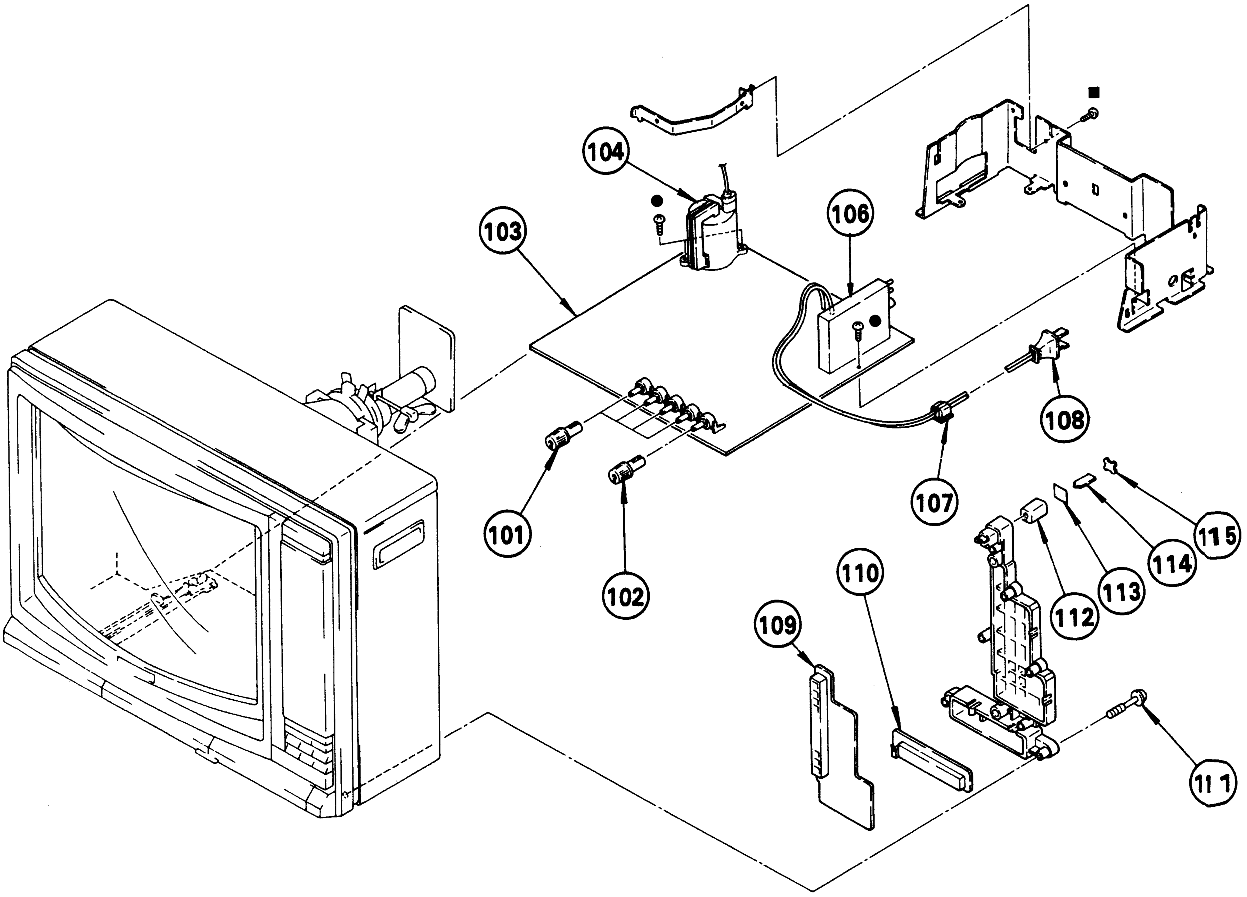
No.	Part No.	Description	Remark
51	⚠.8-738-703-05	CRT 520SB22A	
52	4-348-567-00	WASHER, CRT POSITION	
53	3-703-003-00	SPACER, DY	
54	1-452-146-00	MAGNET, BMC	
55	⚠.1-425-901-22	COIL, DE GAUSSING	
56	⚠.1-451-182-22	DEFLECTION YOKE (SY-108A)	
57	●:A-1330-406-A	C BOARD, COMPLETE	
58	4-303-774-XX	SPRING	
59	●:4-342-459-00	SHIELD (19V), CRT.	
60	4-306-034-00	FLANGE NUT, (B) 5MM	
61	⚠.1-228-482-24	RESISTOR ASSY, HIGH VOLTAGE	
62	●:1-551-653-00	FEEDER, SOLDERLESS TERMINAL	
63	⚠.1-536-584-51	TERMINAL BOARD ASSY, ANTTENA	
64	1-561-335-00	CONNECTOR, ANTENNA (EAC-31)	
65	Y-2063-103-0	LOOP ANTENNA (AN-15)	
66	4-365-248-00	COVER, BACK	
67	4-329-127-00	CLAMP, CORD	
68	●:4-365-212-00	LABEL, MODEL NUMBER (KV-1954R)	
	●:4-365-205-00	LABEL, MODEL NUMBER (KV-1955R)	
69	1-501-276-00	ANTENNA, TELESCOPIC (AN-18)	
70	X-4309-608-0	PERMALLOY ASSY, CONVERGENCE	
71	1-452-032-00	MAGNET, DISK; 10MM ϕ	
72	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(3) CHASSIS

- ■ TA, BV 3 x 8 7-685-646-71
- ● TA, BV 3 x 12 7-685-648-71



No.	Part No.	Description	Remark
101	4-365-226-01	KNOB, VR	
102	4-365-226-11	KNOB, VR	
103	●:A-1295-670-A	A BOARD, COMPLETE	
104	⚠.1-439-254-12	TRANSFORMER ASSY, FLYBACK	
106	⚠.1-463-445-11	TUNER, ET (BT-892)	
107	⚠.4-334-329-01	HOLDER, AC CORD	
108	⚠.1-551-454-21	CORD, POWER	
109	●:A-1306-245-A	M1 BOARD, COMPLETE	
110	●:1-609-166-00	M2 BOARD	
111	4-319-520-00	SCREW, SPECIAL (+PW4X30)	
112	●:4-342-117-11	CASE, SHIELD (MAIN), R	
113	●:4-333-624-00	FILM (N), SPECIAL	
114	●:1-606-794-00	N BOARD	
115	●:4-342-118-00	LID, SHIELD CASE, R	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

N A

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

CAPACITORS
- MF : μF, PF : μμF

RESISTORS
- All resistors are in ohms
- F : nonflammable

COILS
- MMH : mH, UH : μH

Ref.No	Part No.	Description			Remark
	♦:1-606-794-00	N BOARD *******			
		CAPACITOR			
C1	1-123-617-00	ELECT	10MF	20%	16V
C2	1-123-617-00	ELECT	10MF	20%	16V
C3	1-123-617-00	ELECT	10MF	20%	16V
C4	1-161-019-00	CERAMIC	0.033MF	10%	25V
C5	1-108-567-00	MYLAR	0.0033MF	5%	50V
C6	1-123-821-00	ELECT	47MF	20%	16V
		DIODE			
D1	8-719-110-32	DIODE PH302B			
		IC			
IC1	8-759-113-73	IC UPC1373H			
		COIL			
L1	1-404-310-00	COIL 47MMH			
**					
	♦:A-1295-670-A	A BOARD, COMPLETE *****************			
	♦:1-508-786-00	2P PLUG (M)			
	♦:1-508-915-11	PLUG, 1P			
	♦:1-556-108-00	CONNECTOR, MINIATURE 1P			
	♦:4-334-952-00	CASE (C), SHIELD			
	♦:4-350-807-00	CASE (MAIN), SHIELD, VIF			
	4-365-216-00	SPACER, MICA			
	♦:4-365-232-00	LID, UPPER, SHIELD CASE, VIF			
	♦:4-365-233-00	LID, BOTTOM, SHIELD CASE, VIF			
		CONNECTOR			
A2	♦:1-508-765-00	3P PLUG (M)			
A3	♦:1-560-123-00	PLUG, CONNECTOR (2.5MM) 3P			
A4	♦:1-508-765-00	3P PLUG (M)			
A5	♦:1-508-768-00	6P PLUG			
A7	♦:1-560-125-00	PLUG, CONNECTOR (2.5MM) 5P			
A10	♦:1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P			
A11	♦:1-560-125-00	PLUG, CONNECTOR (2.5MM) 5P			
A12	♦:1-560-129-00	PLUG, CONNECTOR (2.5MM) 9P			
		CAPACITOR			
C106	1-123-379-00	ELECT	0.47MF	20%	50V
C107	1-123-356-00	ELECT	10MF	20%	16V
C108	1-123-330-00	ELECT	22MF	20%	16V
C109	1-123-356-00	ELECT	10MF	20%	16V
C110	1-123-318-00	ELECT	33MF	20%	16V
C111	1-108-389-00	MYLAR	0.1MF	10%	100V
C112	1-108-377-00	MYLAR	0.01MF	10%	100V
C201	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C202	1-108-380-00	MYLAR	0.018MF	10%	100V
C203	1-123-586-00	ELECT	0.1MF	20%	50V
C204	1-123-447-00	ELECT	0.22MF	20%	50V
C205	1-102-525-00	CERAMIC	68PF	5%	50V
C206	1-123-323-00	ELECT	470MF	20%	16V
C207	1-101-004-00	CERAMIC	0.01MF		50V
C208	1-102-510-00	CERAMIC	12PF	5%	50V
C209	1-102-494-00	CERAMIC	68PF	5%	50V
C210	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C211	1-108-380-00	MYLAR	0.018MF	10%	100V
C212	1-123-286-00	ELECT	0.33MF	20%	50V
C213	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C214	1-123-356-00	ELECT	10MF	20%	16V
C215	1-101-006-00	CERAMIC	0.047MF		50V
C218	1-123-333-00	ELECT	100MF	20%	16V
C220	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C221	1-123-356-00	ELECT	10MF	20%	16V
C222	1-123-332-00	ELECT	47MF	20%	16V
C223	1-123-380-00	ELECT	1MF	20%	50V
C225	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C303	1-161-313-00	CERAMIC	150PF	10%	50V
C306	1-123-447-00	ELECT	0.22MF	20%	50V
C307	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C308	1-123-330-00	ELECT	22MF	20%	16V
C309	1-161-263-00	CERAMIC	22PF	5%	50V
C310	1-102-121-00	CERAMIC	0.0022MF	10%	50V
C311	1-101-004-00	CERAMIC	0.01MF		50V
C312	1-123-381-00	ELECT	2.2MF	20%	50V
C313	1-108-371-00	MYLAR	0.0033MF	10%	100V
C315	1-123-286-00	ELECT	0.33MF	20%	50V
C316	1-123-447-00	ELECT	0.22MF	20%	50V
C317	1-102-074-00	CERAMIC	0.001MF	10%	50V
C318	1-123-379-00	ELECT	0.47MF	20%	50V
C319	1-121-806-00	ELECT	10MF		16V
C320	1-123-379-00	ELECT	0.47MF	20%	50V
C322	1-101-004-00	CERAMIC	0.01MF		50V
C323	1-123-380-00	ELECT	1MF	20%	50V
C325	1-101-880-00	CERAMIC	47PF	5%	50V
C326	1-102-865-00	CERAMIC	8PF	0.5PF	50V
C327	1-102-107-00	CERAMIC	120PF	10%	50V
C328	1-102-112-00	CERAMIC	330PF	10%	50V
C330	1-123-333-00	ELECT	100MF	20%	16V
C332	1-108-389-00	MYLAR	0.1MF	10%	100V
C333	1-108-378-00	MYLAR	0.012MF	10%	100V
C334	1-123-586-00	ELECT	0.1MF	20%	50V
C335	1-123-356-00	ELECT	10MF	20%	50V
C337	1-102-973-00	CERAMIC	100PF	5%	50V
C338	1-123-356-00	ELECT	10MF	20%	16V
C339	1-102-973-00	CERAMIC	100PF	5%	50V
C340	1-123-382-00	ELECT	3.3MF	20%	50V
C341	1-123-380-00	ELECT	1MF	20%	50V
C342	1-102-074-00	CERAMIC	0.001MF	10%	50V
C343	1-123-380-00	ELECT	1MF	20%	50V

Ref.No	Part No.	Description			Remark
C344	1-123-380-00	ELECT	1MF	20%	50V
C345	1-123-318-00	ELECT	33MF	20%	16V
C349	1-123-332-00	ELECT	47MF	20%	16V
C355	1-102-858-00	CERAMIC	10PF	0.5PF	50V
C356	1-102-858-00	CERAMIC	10PF	0.5PF	50V
C363	1-123-381-00	ELECT	2.2MF	20%	50V
C502	1-108-384-00	MYLAR	0.039MF	10%	100V
C504	1-123-380-00	ELECT	1MF	20%	50V
C505	1-123-330-00	ELECT	22MF	20%	16V
C506	1-123-328-00	ELECT	4.7MF	20%	25V
C508	1-108-371-00	MYLAR	0.0033MF	10%	100V
C509	1-102-922-00	CERAMIC	110PF	5%	50V
C510	1-123-586-00	ELECT	0.1MF	20%	50V
C511	1-108-367-00	MYLAR	0.0015MF	10%	100V
C512	1-108-369-00	MYLAR	0.0022MF	10%	100V
C513	1-102-244-00	CERAMIC	220PF	10%	500V
C514	1-123-380-00	ELECT	1MF	20%	50V
C515	1-123-345-00	ELECT	100MF	20%	35V
C516	1-121-806-00	ELECT	10MF		16V
C518	1-108-369-00	MYLAR	0.0022MF	10%	100V
C519	1-108-689-11	MYLAR	0.0056MF	10%	200V
C521	1-108-374-00	MYLAR	0.0056MF	10%	100V
C522	1-102-030-00	CERAMIC	330PF	10%	500V
C523	1-123-584-00	ELECT	22MF	10%	16V
C524	1-102-212-00	CERAMIC	820PF	10%	500V
C525	1-102-529-00	CERAMIC	100PF	5%	50V
C526	1-162-115-00	CERAMIC	330PF	10%	2KV
C527	1-108-383-00	MYLAR	0.033MF	10%	100V
C528	1-131-351-00	TANTALUM	4.7MF	20%	35V
C529	1-136-052-00	FILM	0.3MF	5%	400V
C530	1-102-223-00	CERAMIC	0.0047MF	20%	1.6KV
C532	1-123-003-00	ELECT	1MF		250V
C533	1-131-498-00	TANTALUM	1MF	10%	25V
C534	1-123-587-00	ELECT	560MF	10%	25V
C535	1-123-330-00	ELECT	22MF	20%	25V
C536	1-123-321-00	ELECT	220MF	20%	16V
C537	1-123-344-00	ELECT	47MF	20%	35V
C538	1-102-212-00	CERAMIC	820PF	10%	500V
C539	1-123-379-00	ELECT	0.47MF	20%	50V
C540	1-121-999-00	ELECT	10MF		160V
C541	1-123-024-00	ELECT	33MF		160V
C542	1-108-429-00	MYLAR	0.047MF	10%	200V
C543	1-123-252-00	ELECT	1MF		160V
C544	1-123-335-00	ELECT	330MF	20%	25V
C545	1-102-212-00	CERAMIC	820PF	10%	500V
C546	1-123-346-00	ELECT	220MF	20%	35V
C547	1-123-357-00	ELECT	22MF	20%	50V
C548	1-123-379-00	ELECT	0.47MF	20%	50V
C549	1-101-004-00	CERAMIC	0.01MF		50V
C551	1-123-380-00	ELECT	1MF	20%	50V
C552	1-108-382-00	MYLAR	0.027MF	10%	100V
C553 ⚠	1-130-912-11	FILM	0.0094MF	3%	1.2KV
C557	1-123-357-00	ELECT	22MF	20%	50V

Ref.No	Part No.	Description			Remark
C558	1-123-356-00	ELECT	10MF	20%	16V
C559	1-123-381-00	ELECT	2.2MF	20%	50V
C560	1-102-030-00	CERAMIC	330PF	10%	500V
C561	1-123-330-00	ELECT	22MF	20%	16V
C567	1-108-387-00	MYLAR	0.068MF	10%	100V
C568	1-108-385-00	MYLAR	0.047MF	10%	100V
C569	1-108-378-00	MYLAR	0.012MF	10%	100V
C570	1-123-380-00	ELECT	1MF	20%	50V
C571	1-161-271-00	CERAMIC	100PF	5%	50V
C601 ⚠	1-108-745-52	MYLAR	0.22MF	20%	125V
C602	1-125-215-00	ELECT(BLOCK)	560MF		200V
C603	1-121-999-00	ELECT	10MF		160V
C604	1-123-358-00	ELECT	33MF	20%	50V
C605	1-123-381-00	ELECT	2.2MF	20%	100V
C606	1-121-246-00	ELECT	4.7MF		160V
C607	1-108-371-00	MYLAR	0.0033MF	10%	100V
C608	1-123-318-00	ELECT	33MF	20%	16V
C609	1-123-356-00	ELECT	10MF	20%	16V
C610	1-123-948-00	ELECT	22MF	20%	250V
C611	1-161-748-00	FILM	0.0047MF		125V
C613	1-121-999-00	ELECT	10MF		160V

FILTER

CF201	1-409-332-00	CERAMIC TRAP (4.5MHZ)
CF202	1-527-260-00	FILTER, CERAMIC (4.5MHZ)

TRIMMER

CV301	1-141-147-XX	CAP, TRIMMER

DIODE

D104	8-719-102-88	DIODE	RD9.1E-N3
D203	8-719-100-68	DIODE	RD13E-B2
D301	=>8-719-911-19	DIODE	1SS119
D302	=>8-719-911-19	DIODE	1SS119
D303	=>8-719-911-19	DIODE	1SS119
D304	=>8-719-911-19	DIODE	1SS119
D305	=>8-719-911-19	DIODE	1SS119
D501	=>8-719-911-55	DIODE	U05G
D503	8-719-903-09	DIODE	V30N
D505	8-719-901-93	DIODE	V19E
D506	8-719-903-09	DIODE	V30N
D507	8-719-300-76	DIODE	RH-1A
D508	=>8-719-901-93	DIODE	V19E
D509	=>8-719-911-55	DIODE	U05G
D510	=>8-719-911-55	DIODE	U05G
D511	=>8-719-911-55	DIODE	U05G
D513	=>8-719-911-19	DIODE	1SS119
D601	8-719-503-06	DIODE	S3WB60Z
D602	=>8-719-911-55	DIODE	U05G
D604	8-719-900-93	DIODE	V09C

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A

Ref.No	Part No.	Description	Remark
		DELAY LINE	
DL301	1-415-176-00	DELAY LINE	
		CONNECTOR	
DY1	1-506-348-XX	3P PLUG (L)	
DY2	1-506-348-XX	3P PLUG (L)	
		FUSE	
F601 ⚠.	1-532-221-11	FUSE 5A	
	1-533-127-00	FUSE CLIP, F601	
F602 ⚠.	1-532-570-11	FUSE, GLASS TUBE 1.25A	
●:	1-533-146-00	HOLDER, FUSE, F602	
		IC	
IC102	8-759-800-12	IC LA7920	
IC201	8-758-852-00	IC CX885B	
IC301	8-758-480-00	IC CX848	
IC302	8-759-905-15	IC CX841A	
IC501	8-752-001-31	IC CX20013A	
IC502	8-759-113-78	IC UPC1378H-L	
IC503 ⚠.	1-235-217-11	MODULE (PM-3)	
IC601 ⚠.	8-749-956-30	IC STK563F	
		COIL	
L101	1-408-408-00	MICRO INDUCTOR 8.2UH	
L202	1-408-412-00	MICRO INDUCTOR 18UH	
L205	1-408-408-00	MICRO INDUCTOR 8.2UH	
L206	1-408-403-00	MICRO INDUCTOR 3.3UH	
L210	1-408-403-00	MICRO INDUCTOR 3.3UH	
L301	1-408-416-00	MICRO INDUCTOR 39UH	
L302	1-408-163-00	MICRO INDUCTOR 5.6MMH	
L303	1-408-398-00	MICRO INDUCTOR 1.2UH	
L304	1-408-398-00	MICRO INDUCTOR 1.2UH	
L305	1-408-398-00	MICRO INDUCTOR 1.2UH	
L501	1-408-348-00	MICRO INDUCTOR 39UH	
L502	1-459-316-00	COIL, FERRITE (HLC)	
L503 ⚠.	1-459-315-11	COIL, VAR, FERRITE (HWC)	
L505	1-407-705-00	MICRO INDUCTOR 100UH	
L507	1-407-501-31	MICRO INDUCTOR 5.6MMH	
L508	1-408-427-00	MICRO INDUCTOR 330UH	
L509	1-408-400-00	MICRO INDUCTOR 1.8UH	
L510	1-408-348-00	MICRO INDUCTOR 39UH	
L511	1-407-178-XX	MICRO INDUCTOR 1UH	
L526	1-407-365-00	COIL, CHOKE (HIGH FREQUENCY)	
L527	1-408-349-00	COIL, CHOKE 1UH	
L540	1-408-247-00	MICRO INDUCTOR 33MMH	
L601 ⚠.	1-408-225-11	MICRO INDUCTOR 3.3UH	
L602 ⚠.	1-408-225-11	MICRO INDUCTOR 3.3UH	
		NEON LAMP	
NL501	1-519-108-XX	LAMP, NEON	

Ref.No	Part No.	Description				Remark
		TRANSISTOR				
Q103	8-729-600-08	TRANSISTOR 2SK381-E				
Q201	=>8-729-177-43	TRANSISTOR 2SD774				
Q301	8-729-117-54	TRANSISTOR 2SA1175				
Q303	=>8-729-178-54	TRANSISTOR 2SC2785				
Q304	=>8-729-178-54	TRANSISTOR 2SC2785				
Q305	=>8-729-178-54	TRANSISTOR 2SC2785				
Q306	8-729-178-54	TRANSISTOR 2SC2785				
Q307	8-729-178-54	TRANSISTOR 2SC2785				
Q501	8-729-168-82	TRANSISTOR 2SC2688				
Q502	8-729-800-87	TRANSISTOR 2SD1398				
Q503	8-729-177-43	TRANSISTOR 2SD774				
Q505	=>8-729-117-54	TRANSISTOR 2SA1175				
Q601	8-729-255-12	TRANSISTOR 2SC2551				
		RESISTOR				
R107	1-246-533-00	CARBON	330K	5%	1/4W	
R110	1-246-517-00	CARBON	68K	5%	1/4W	
R111	1-247-887-00	CARBON	220K	5%	1/6W	
R112	1-247-901-00	CARBON	820K	5%	1/6W	
R113	1-247-903-00	CARBON	1M	5%	1/6W	
R115	1-247-839-00	CARBON	2.2K	5%	1/6W	
R116	1-247-839-00	CARBON	2.2K	5%	1/6W	
R117	1-247-871-00	CARBON	47K	5%	1/6W	
R120	1-247-208-00	CARBON	47	5%	1/2W	
R201	1-247-845-00	CARBON	3.9K	5%	1/6W	
R202	1-247-879-00	CARBON	100K	5%	1/6W	
R203	1-247-869-00	CARBON	39K	5%	1/6W	
R204	1-247-833-00	CARBON	1.2K	5%	1/6W	
R205	1-247-831-00	CARBON	1K	5%	1/6W	
R206	1-247-891-00	CARBON	330K	5%	1/6W	
R207	1-247-819-00	CARBON	330	5%	1/6W	
R209	1-247-831-00	CARBON	1K	5%	1/6W	
R211	1-247-839-00	CARBON	2.2K	5%	1/6W	
R212	1-247-831-00	CARBON	1K	5%	1/6W	
R213	1-247-846-00	CARBON	4.3K	5%	1/6W	
R214	1-247-838-00	CARBON	2K	5%	1/6W	
R215	1-247-864-00	CARBON	24K	5%	1/6W	
R216	1-247-843-00	CARBON	3.3K	5%	1/6W	
R219	1-247-873-00	CARBON	56K	5%	1/6W	
R220	1-246-513-00	CARBON	47K	5%	1/4W	
R222	1-213-124-00	METAL OXIDE	27	5%	1W	F
R223	1-247-831-00	CARBON	1K	5%	1/6W	
R226	1-211-427-00	CARBON	100	5%	1/8W	F
R227	1-247-839-00	CARBON	2.2K	5%	1/6W	
R228	1-247-831-00	CARBON	1K	5%	1/6W	
R301	1-247-831-00	CARBON	1K	5%	1/6W	
R303	1-247-873-00	CARBON	56K	5%	1/6W	
R305	1-247-827-00	CARBON	680	5%	1/6W	
R306	1-247-855-00	CARBON	10K	5%	1/6W	
R309	1-247-823-00	CARBON	470	5%	1/6W	
R310	1-247-823-00	CARBON	470	5%	1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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Ref.No	Part No.	Description				Remark
R311	1-247-823-00	CARBON	470	5%	1/6W	
R312	1-247-821-00	CARBON	390	5%	1/6W	
R313	1-247-829-00	CARBON	820	5%	1/6W	
R314	1-246-505-00	CARBON	22K	5%	1/4W	
R315	1-247-863-00	CARBON	22K	5%	1/6W	
R319	1-247-843-00	CARBON	3.3K	5%	1/6W	
R320	1-247-863-00	CARBON	22K	5%	1/6W	
R322	1-247-801-00	CARBON	56	5%	1/6W	
R323	1-246-473-00	CARBON	1K	5%	1/4W	
R324	1-247-847-00	CARBON	4.7K	5%	1/6W	
R325	1-247-841-00	CARBON	2.7K	5%	1/6W	
R326	1-247-795-00	CARBON	33	5%	1/6W	
R333	1-247-851-00	CARBON	6.8K	5%	1/6W	
R334	1-247-855-00	CARBON	10K	5%	1/6W	
R335	1-247-850-00	CARBON	6.2K	5%	1/6W	
R336	1-247-839-00	CARBON	2.2K	5%	1/6W	
R337	1-247-901-00	CARBON	820K	5%	1/6W	
R338	1-247-851-00	CARBON	6.8K	5%	1/6W	
R339	1-247-821-00	CARBON	390	5%	1/6W	
R340	1-247-851-00	CARBON	6.8K	5%	1/6W	
R341	1-247-855-00	CARBON	10K	5%	1/6W	
R342	1-247-821-00	CARBON	390	5%	1/6W	
R345	1-247-855-00	CARBON	10K	5%	1/6W	
R347	1-247-855-00	CARBON	10K	5%	1/6W	
R348	1-247-853-00	CARBON	8.2K	5%	1/6W	
R349	1-247-877-00	CARBON	82K	5%	1/6W	
R350	1-247-901-00	CARBON	820K	5%	1/6W	
R351	1-247-843-00	CARBON	3.3K	5%	1/6W	
R352	1-247-823-00	CARBON	470	5%	1/6W	
R353	1-247-807-00	CARBON	100	5%	1/6W	
R354	1-247-887-00	CARBON	220K	5%	1/6W	
R355	1-247-815-00	CARBON	220	5%	1/6W	
R357	1-247-851-00	CARBON	6.8K	5%	1/6W	
R358	1-247-841-00	CARBON	2.7K	5%	1/6W	
R359	1-247-833-00	CARBON	1.2K	5%	1/6W	
R360	1-247-835-00	CARBON	1.5K	5%	1/6W	
R361	1-247-839-00	CARBON	2.2K	5%	1/6W	
R362	1-246-473-00	CARBON	1K	5%	1/4W	
R363	1-247-837-00	CARBON	1.8K	5%	1/6W	
R364	1-247-837-00	CARBON	1.8K	5%	1/6W	
R367	1-247-831-00	CARBON	1K	5%	1/6W	
R501	1-247-842-00	CARBON	3K	5%	1/6W	
R502	1-247-853-00	CARBON	8.2K	5%	1/6W	
R503	1-247-887-00	CARBON	220K	5%	1/6W	
R504	1-247-879-00	CARBON	100K	5%	1/6W	
R505	1-247-853-00	CARBON	8.2K	5%	1/6W	
R506	1-247-855-00	CARBON	10K	5%	1/6W	
R507	1-247-825-00	CARBON	560	5%	1/6W	
R510	1-247-828-00	CARBON	750	5%	1/6W	
R511	1-247-813-00	CARBON	180	5%	1/6W	
R512	1-247-846-00	CARBON	4.3K	5%	1/6W	
R513	1-246-457-00	CARBON	220	5%	1/4W	
R514	1-206-748-61	METAL OXIDE	9.1K	5%	3W	F

Ref.No	Part No.	Description				Remark
R515⚠.	**1-246-443-25**	**CARBON**	**56**	**5%**	**1/4W**	
R516	1-247-868-00	CARBON	36K	5%	1/6W	
R518	1-247-222-00	CARBON	180	5%	1/2W	
R519	1-247-855-00	CARBON	10K	5%	1/6W	
R520	1-247-819-00	CARBON	330	5%	1/6W	
R521	1-247-831-00	CARBON	1K	5%	1/6W	
R522	1-213-140-00	METAL OXIDE	560	5%	1W	F
R523	1-247-830-00	CARBON	910	5%	1/6W	
R524	1-247-009-00	CARBON	470	5%	1/4W	F
R525	1-247-857-00	CARBON	12K	5%	1/6W	
R526	1-206-692-00	METAL OXIDE	15K	5%	2W	F
R527	1-247-848-00	CARBON	5.1K	5%	1/6W	
R529	1-215-449-00	METAL	15K	1%	1/6W	
R531	1-212-361-00	METAL OXIDE	1.2	5%	1W	F
R532	1-247-845-00	CARBON	3.9K	5%	1/6W	
R533	1-247-586-00	CARBON	3.9K	5%	1/8W	
R534⚠.	**1-247-840-31**	**CARBON**	**2.4K**	**5%**	**1/6W**	
R535⚠.	**1-247-863-31**	**CARBON**	**22K**	**5%**	**1/6W**	
R536	1-246-783-00	CARBON	1K	5%	1/8W	F
R538	1-213-146-00	METAL OXIDE	1.8K	5%	1W	F
R539	1-247-831-00	CARBON	1K	5%	1/6W	
R540	1-247-879-00	CARBON	100K	5%	1/6W	
R541	1-247-887-00	CARBON	220K	5%	1/6W	
R544	1-213-142-00	METAL OXIDE	820	5%	1W	F
R545	1-247-879-00	CARBON	100K	5%	1/6W	
R546	1-206-705-00	METAL OXIDE	150	5%	3W	F
R547	1-247-015-00	CARBON	2.2K	5%	1/4W	F
R550	1-212-359-00	METAL OXIDE	0.82	5%	1W	F
R551	1-246-472-00	CARBON	910	5%	1/4W	
R552	1-247-037-00	CARBON	390	5%	1/8W	F
R553	1-247-230-00	CARBON	390	5%	1/2W	
R554	1-247-809-00	CARBON	120	5%	1/6W	
R555	1-246-472-00	CARBON	910	5%	1/4W	
R558	1-247-847-00	CARBON	4.7K	5%	1/6W	
R560	1-247-855-00	CARBON	10K	5%	1/6W	
R564	1-247-851-00	CARBON	6.8K	5%	1/6W	
R565	1-247-903-00	CARBON	1M	5%	1/6W	
R571	1-215-373-31	METAL	10	1%	1/6W	
R572	1-247-879-00	CARBON	100K	5%	1/6W	
R573	1-247-855-00	CARBON	10K	5%	1/6W	
R574	1-247-841-00	CARBON	2.7K	5%	1/6W	
R575	1-247-440-00	CARBON	10K	5%	1/4W	
R576	1-212-365-00	METAL OXIDE	2.7	5%	1W	F
R577	1-246-525-00	CARBON	150K	5%	1/4W	
R578	1-247-855-00	CARBON	10K	5%	1/6W	
R579	1-246-497-00	CARBON	10K	5%	1/4W	
R580	1-246-509-00	CARBON	33K	5%	1/4W	
R581	1-247-859-00	CARBON	15K	5%	1/6W	
☒R582⚠.		CARBON			**1/4W**	
☒R583⚠.		CARBON			**1/4W**	
R602	1-205-701-00	CEMENTED	2.2	5%	10W	
R603	1-214-599-00	METAL OXIDE	68K	5%	1W	F
R604	1-244-885-00	CARBON	3.3K	5%	1/2W	
R606	1-247-865-00	CARBON	27K	5%	1/6W	
R607	1-205-700-00	CEMENTED	200	5%	20W	F

- The components identified by ☒ in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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Ref.No	Part No.	Description				Remark
R608	1-247-879-00	CARBON	100K	5%	1/6W	
R609	1-247-813-00	CARBON	180	5%	1/6W	
R610	1-247-855-00	CARBON	10K	5%	1/6W	
R611	1-247-855-00	CARBON	10K	5%	1/6W	
R612	1-213-148-00	METAL OXIDE	2.7K	5%	1W	F
R613	1-213-131-00	METAL OXIDE	100	5%	1W	F
R614	1-206-735-61	METAL OXIDE	2.7K	5%	3W	F
R616 ⚠	.1-206-447-61	METAL OXIDE	2.2	5%	2W	F
R617	1-247-887-00	CARBON	220K	5%	1/6W	
R618	1-246-449-00	CARBON	100	5%	1/4W	
R619 ⚠	.1-202-719-51	SOLID	1M	10%	1/2W	
R620	1-213-156-00	METAL OXIDE	12K	5%	1W	F

RELAY

RL601⚠	.1-515-346-12	RELAY

VARIABLE RESISTOR

RV201	1-228-723-00	RES, ADJ, CERAMIC CARBON 4.7K
RV301	1-226-850-00	RES, ADJ, CARBON 4.7K
RV302	1-228-723-00	RES, ADJ, CERAMIC CARBON 4.7K
RV303	1-226-851-00	RES, ADJ, CARBON 10K
RV304	1-228-941-00	RES, VAR, CARBON 10K
RV306	1-228-941-00	RES, VAR, CARBON 10K
RV307	1-228-940-00	RES, VAR, CARBON 10K
RV308	1-228-940-00	RES, VAR, CARBON 10K
RV309	1-226-851-00	RES, ADJ, CARBON 10K
RV501	1-228-727-00	RES, ADJ, CERAMIC CARBON 47K
RV503	1-228-724-00	RES, ADJ, CERAMIC CARBON 10K
RV504	1-228-723-00	RES, ADJ, CERAMIC CARBON 4.7K

SWITCH

S301	1-554-414-00	SWITCH, ROTARY
S501	1-554-186-00	SWITCH, LEVER

FILTER

SF201	1-404-227-51	SAWF

SPARK GAP

SG501	1-519-063-XX	DISCHARGING GAP 1.5K

TRANSFORMER

T201	1-404-321-00	VIFT
T202	1-404-181-00	COIL, VIF
T203	1-404-181-00	COIL, VIF
T204	1-403-367-00	COIL, SIF
T205	1-404-411-00	COIL, SIF
T206	1-404-153-00	VIFT
T301	1-425-995-00	TRANSFORMER, INPUT
T302	1-409-193-00	COIL 3.58MHZ TRAP
T501	1-437-090-00	HDT
T502⚠	.1-421-394-11	TRANSFORMER, FERRITE (HPCT)

Ref.No	Part No.	Description	Remark
T601 ⚠	.1-427-530-11	TRANSFORMER, OUTPUT	
T602 ⚠	.1-421-357-31	TRANSFORMER, LINE FILTER	

THERMISTOR

⚠THP601	.1-800-686-32	THERMISTOR (POSITIVE)

CRYSTAL

X301	1-527-722-00	OSCILLATOR, CRYSTAL 4.3MHZ

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●:A-1306-245-A M1 BOARD, COMPLETE

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●:1-560-123-00 PLUG, CONNECTOR (2.5MM) 3P
●:4-338-114-00 HOLDER, NEON LAMP

CAPACITOR

C001	1-102-074-00	CERAMIC	0.001MF	10%	50V
C002	1-123-356-00	ELECT	10MF	20%	16V
C003	1-123-380-00	ELECT	1MF	20%	50V
C004	1-123-382-00	ELECT	3.3MF	20%	50V
C005	1-102-111-00	CERAMIC	270PF	10%	50V
C006	1-102-106-00	CERAMIC	100PF	10%	50V
C007	1-102-112-00	CERAMIC	330PF	10%	50V
C008	1-102-978-00	CERAMIC	220PF	5%	50V
C009	1-108-429-00	MYLAR	0.047MF	10%	200V
C010	1-108-381-00	MYLAR	0.022MF	10%	100V
C011	1-102-111-00	CERAMIC	270PF	10%	50V
C012	1-102-111-00	CERAMIC	270PF	10%	50V
C013	1-102-111-00	CERAMIC	270PF	10%	50V
C014	1-108-381-00	MYLAR	0.022MF	10%	100V
C016	1-123-382-00	ELECT	3.3MF	20%	50V
C018	1-123-369-00	ELECT	4.7MF	20%	50V
C019	1-123-383-00	ELECT	4.7MF	20%	100V
C020	1-101-004-00	CERAMIC	0.01MF		50V
C021	1-101-004-00	CERAMIC	0.01MF		50V
C022	1-108-421-00	MYLAR	0.01MF	10%	200V
C023	1-102-074-00	CERAMIC	0.001MF	10%	50V

DIODE

D001	8-719-103-38	DIODE RD6.8J-N3
D018	8-719-106-34	DIODE SR632D
	●:4-365-214-00	HOLDER, LED, D018
D019	8-719-106-34	DIODE SR632D
	●:4-365-214-00	HOLDER, LED, D019
D021	=>8-719-911-19	DIODE 1SS119
D022	=>8-719-911-19	DIODE 1SS119

IC

IC001	8-759-907-03	IC MP6359L
IC002	8-759-157-41	IC UPC574J-G

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark

COIL

Ref.No	Part No.	Description	Remark
L001	1-407-169-XX	MICRO INDUCTOR 100UH	

NEON LAMP

Ref.No	Part No.	Description	Remark
NL001	1-519-154-00	LAMP, NEON	
NL002	1-519-154-00	LAMP, NEON	
NL003	1-519-154-00	LAMP, NEON	
NL004	1-519-154-00	LAMP, NEON	
NL005	1-519-154-00	LAMP, NEON	
NL006	1-519-154-00	LAMP, NEON	
NL007	1-519-154-00	LAMP, NEON	
NL008	1-519-154-00	LAMP, NEON	
NL009	1-519-154-00	LAMP, NEON	
NL010	1-519-154-00	LAMP, NEON	
NL011	1-519-154-00	LAMP, NEON	
NL012	1-519-154-00	LAMP, NEON	
NL013	1-519-154-00	LAMP, NEON	
NL014	1-519-154-00	LAMP, NEON	

TRANSISTOR

Ref.No	Part No.	Description	Remark
Q001	8-729-117-54	TRANSISTOR 2SA1175	
Q002	8-729-117-54	TRANSISTOR 2SA1175	
Q003	8-729-178-54	TRANSISTOR 2SC2785	
Q004	8-729-178-54	TRANSISTOR 2SC2785	
Q005	8-729-117-54	TRANSISTOR 2SA1175	
Q006	8-729-117-54	TRANSISTOR 2SA1175	
Q007	8-729-178-54	TRANSISTOR 2SC2785	
Q008	8-729-117-54	TRANSISTOR 2SA1175	
Q009	8-729-117-54	TRANSISTOR 2SA1175	
Q010	8-729-178-54	TRANSISTOR 2SC2785	
Q011	8-729-178-54	TRANSISTOR 2SC2785	
Q012	=>8-729-374-02	TRANSISTOR 2SB740	
Q013	8-729-801-45	TRANSISTOR 2SC3064-E	
Q014	8-729-168-82	TRANSISTOR 2SC2688	

RESISTOR

Ref.No	Part No.	Description				Remark
R001	1-246-485-00	CARBON	3.3K	5%	1/4W	
R002	1-246-481-00	CARBON	2.2K	5%	1/4W	
R003	1-246-513-00	CARBON	47K	5%	1/4W	
R004	1-246-513-00	CARBON	47K	5%	1/4W	
R006	1-246-543-00	CARBON	820K	5%	1/4W	
R007	1-246-513-00	CARBON	47K	5%	1/4W	
R008	1-246-509-00	CARBON	33K	5%	1/4W	
R009	1-246-521-00	CARBON	100K	5%	1/4W	
R010	1-246-521-00	CARBON	100K	5%	1/4W	
R011	1-246-509-00	CARBON	33K	5%	1/4W	
R012	1-246-505-00	CARBON	22K	5%	1/4W	
R013	1-246-499-00	CARBON	12K	5%	1/4W	
R014	1-246-497-00	CARBON	10K	5%	1/4W	
R015	1-246-497-00	CARBON	10K	5%	1/4W	
R016	1-246-496-00	CARBON	9.1K	5%	1/4W	
R017	1-246-503-00	CARBON	18K	5%	1/4W	
R018	1-246-501-00	CARBON	15K	5%	1/4W	
R019	1-246-471-00	CARBON	820	5%	1/4W	
R020	1-246-515-00	CARBON	56K	5%	1/4W	
R021	1-246-449-00	CARBON	100	5%	1/4W	
R022	1-246-491-00	CARBON	5.6K	5%	1/4W	
R023	1-246-485-00	CARBON	3.3K	5%	1/4W	
R024	1-246-485-00	CARBON	3.3K	5%	1/4W	
R025	1-246-485-00	CARBON	3.3K	5%	1/4W	
R026	1-246-485-00	CARBON	3.3K	5%	1/4W	
R028	1-246-485-00	CARBON	3.3K	5%	1/4W	
R044	1-246-537-00	CARBON	470K	5%	1/4W	
R045	1-246-529-00	CARBON	220K	5%	1/4W	
R046	1-246-505-00	CARBON	22K	5%	1/4W	
R047	1-247-276-00	CARBON	33K	5%	1/2W	
R048	1-246-497-00	CARBON	10K	5%	1/4W	
R050	1-246-545-00	CARBON	1M	5%	1/4W	
R051	1-246-544-00	CARBON	910K	5%	1/4W	
R052	1-246-521-00	CARBON	100K	5%	1/4W	
R053	1-246-533-00	CARBON	330K	5%	1/4W	
R054	1-246-513-00	CARBON	47K	5%	1/4W	
R056	1-246-513-00	CARBON	47K	5%	1/4W	
R057	1-246-513-00	CARBON	47K	5%	1/4W	
R058	1-214-753-00	METAL	10K	1%	1/4W	
R059	1-214-761-00	METAL	22K	1%	1/4W	
R060	1-247-240-00	CARBON	1K	5%	1/2W	
R067	1-246-463-00	CARBON	390	5%	1/4W	
R068	1-213-151-00	METAL OXIDE	4.7K	5%	1W	F
R069	1-213-151-00	METAL OXIDE	4.7K	5%	1W	F
R070	1-246-457-00	CARBON	220	5%	1/4W	
R071	1-246-453-00	CARBON	150	5%	1/4W	
R073	1-246-545-00	CARBON	1M	5%	1/4W	

SWITCH

Ref.No	Part No.	Description	Remark
S001	1-553-075-21	SWITCH, PUSH	
S002	1-553-075-21	SWITCH, PUSH	
S003	1-553-075-21	SWITCH, PUSH	
S004	1-553-075-21	SWITCH, PUSH	
S005	1-553-075-21	SWITCH, PUSH	
S006	1-553-075-21	SWITCH, PUSH	
S007	1-553-075-21	SWITCH, PUSH	

CRYSTAL

Ref.No	Part No.	Description	Remark
X001	1-527-532-00	OSCILLATOR, CERAMIC	

****

♠:1-609-166-00 M2 BOARD
****

DIODE

Ref.No	Part No.	Description	Remark
D003	8-719-911-19	DIODE 1SS119	
D004	8-719-911-19	DIODE 1SS119	
D005	8-719-911-19	DIODE 1SS119	

Ref.No	Part No.	Description				Remark
D006	8-719-911-19	DIODE 1SS119				
D007	8-719-911-19	DIODE 1SS119				
D008	8-719-911-19	DIODE 1SS119				
D009	8-719-911-19	DIODE 1SS119				
D010	8-719-911-19	DIODE 1SS119				
D011	8-719-911-19	DIODE 1SS119				
D012	8-719-911-19	DIODE 1SS119				
D013	8-719-911-19	DIODE 1SS119				
D014	8-719-911-19	DIODE 1SS119				
D015	8-719-911-19	DIODE 1SS119				
D016	8-719-911-19	DIODE 1SS119				

RESISTOR

R029	1-247-893-00	CARBON	390K	5%	1/6W	
R030	1-247-893-00	CARBON	390K	5%	1/6W	
R031	1-247-893-00	CARBON	390K	5%	1/6W	
R032	1-247-893-00	CARBON	390K	5%	1/6W	
R033	1-247-893-00	CARBON	390K	5%	1/6W	
R034	1-247-893-00	CARBON	390K	5%	1/6W	
R035	1-247-893-00	CARBON	390K	5%	1/6W	
R036	1-247-893-00	CARBON	390K	5%	1/6W	
R037	1-247-893-00	CARBON	390K	5%	1/6W	
R038	1-247-893-00	CARBON	390K	5%	1/6W	
R039	1-247-893-00	CARBON	390K	5%	1/6W	
R040	1-247-893-00	CARBON	390K	5%	1/6W	
R041	1-247-893-00	CARBON	390K	5%	1/6W	
R042	1-247-893-00	CARBON	390K	5%	1/6W	

VARIABLE RESISTOR

RV001	1-228-943-00	VOLUME BLOCK, PRESET

SWITCH

S008	1-552-437-00	SWITCH, LEVER

****

●:A-1330-406-A C BOARD, COMPLETE
****

●:1-602-373-00 C BOARD
1-526-616-00 SOCKET, CRT

CONNECTOR

C2	●:1-506-371-00	2P PLUG (L)

CAPACITOR

C701	1-123-356-00	ELECT	10MF	20%	50V
C702	1-129-737-00	FILM	0.047MF	20%	630V
C703	1-102-249-00	CERAMIC	680PF	20%	2KV

COIL

Ref.No	Part No.	Description	Remark
L701	1-407-704-00	MICRO INDUCTOR 82UH	
L702	1-407-704-00	MICRO INDUCTOR 82UH	
L703	1-407-704-00	MICRO INDUCTOR 82UH	
L705	1-421-393-00	COIL, FERRITE CHOKE 41UH	

TRANSISTOR

Q701	8-729-322-78	TRANSISTOR 2SC2278
Q702	8-729-322-78	TRANSISTOR 2SC2278
Q703	8-729-322-78	TRANSISTOR 2SC2278

RESISTOR

R701	1-246-455-00	CARBON	180	5%	1/4W	
R702	1-246-489-00	CARBON	4.7K	5%	1/4W	
R703	1-206-692-00	METAL OXIDE	15K	5%	2W	F
R704	1-246-489-00	CARBON	4.7K	5%	1/4W	
R705	1-246-455-00	CARBON	180	5%	1/4W	
R706	1-206-692-00	METAL OXIDE	15K	5%	2W	F
R707	1-246-459-00	CARBON	270	5%	1/4W	
R708	1-246-489-00	CARBON	4.7K	5%	1/4W	
R709	1-206-692-00	METAL OXIDE	15K	5%	2W	F
R710	1-202-824-00	SOLID	3.3K		1/2W	
R711	1-202-837-00	SOLID	82K		1/2W	
R713	1-202-824-00	SOLID	3.3K		1/2W	
R714	1-202-609-00	SOLID	33K		1/2W	
R715	1-202-841-00	SOLID	180K		1/2W	
R716	1-202-824-00	SOLID	3.3K		1/2W	
R717	1-202-719-00	SOLID	1M	10%	1/2W	
R718	1-202-549-00	SOLID	100	10%	1/2W	
R719	1-202-629-00	SOLID	220K		1/2W	
R720	1-202-846-00	SOLID	470K		1/2W	
R721	1-202-848-00	SOLID	680K		1/2W	

VARIABLE RESISTOR

RV701	1-224-644-XX	RES, ADJ, CARBON 4.7K
RV702	1-226-105-00	RES, ADJ, CARBON 220
RV703	1-224-644-XX	RES, ADJ, CARBON 4.7K
RV704	1-226-105-00	RES, ADJ, CARBON 220
RV705	1-224-644-XX	RES, ADJ, CARBON 4.7K
RV706	1-226-063-00	RES, ADJ, CARBON 2.2M
RV707	1-226-114-00	RES, ADJ, METAL GLAZE 2.2M

SPARK GAP

SG701	1-519-063-XX	DISCHARGING GAP
SG702	1-519-063-XX	DISCHARGING GAP
SG703	1-519-063-XX	DISCHARGING GAP
SG704	1-519-063-XX	DISCHARGING GAP
SG705	1-519-063-XX	DISCHARGING GAP
SG706	1-519-063-XX	DISCHARGING GAP

****

MICSELLANEOUS
****

⚠.1-228-482-24 RESISTOR ASSY, HIGH-VOLTAGE

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Ref. o	Part No.	Description	Remark
	⚠.1-451-182-22	DEFLECTION YOKE (SY108A)	
	1-452-032-00	MAGNET, DISK; 10MM ϕ	
	1-452-094-00	MAGNET, RATATABLE DISK; 15MM ϕ	
	1-452-146-00	MAGNET, BMC	
	⚠.1-463-445-11	TUNER, ET (BT-892)	
	1-501-276-00	ANTENNA, TELESCOPIC (AN-18)	
	⚠.1-536-584-51	TERMINAL BOARD ASSY, ANTTENA	
	⚠.1-551-454-21	CORD, POWER	
	●:1-551-653-00	FEEDER, SOLDERLESS TERMINAL	
	●:1-551-655-00	CONNECTOR, ASSY (5P)	
	●:1-551-921-00	CONNECTOR ASSY 3P	
	●:1-555-439-00	CONNECTOR ASSY (LARGE) 3P	
	●:1-555-756-00	CONNECTOR ASSY (2.5MM) 3P	
	●:1-555-955-00	CONNECTOR ASSY (2.5MM) 9P	
	●:1-556-398-00	CONNECTOR ASSY (2.5MM) 5P	
	●:1-556-652-00	CONNECTOR ASSY (2.5MM) 4P	
	●:1-556-754-00	CONNECTOR ASSY, MINIATURE 3P	
	●:1-556-796-00	CONNECTOR ASSY, MINIATURE 6P	
	1-561-335-00	CONNECTOR, ANTENNA (EAC-31)	
J901A	1-507-785-00	JACK, 2-GANG	
J901B	1-507-785-00	JACK, 2-GANG	
L901	⚠.1-425-901-22	COIL, DE GAUSSING	
L902	⚠.1-425-901-22	COIL, DE GAUSSING	
S901	⚠.1-553-262-22	SWITCH, PUSH (POWER SWITCH)	
SP901	1-502-882-00	SPEAKER	
T503	⚠.1-439-254-12	TRANSFORMER ASSY, FLYBACK	
V901	⚠.8-738-703-05	CRT 520SB22A	

****

ACCESSORIES AND PACKING MATERIALS

****

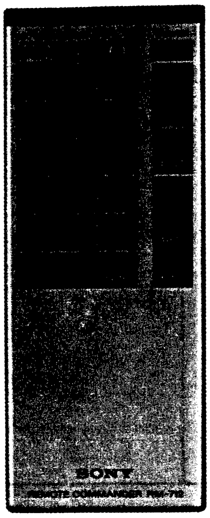
Part.No.	Description	Remark
A-1470-614-A	COMMANDER ASSY (RM-712)	
1-504-034-32	EARPHONE, MAGNETIC (ME-20B)	
2-297-256-00	BAG, POLYETHYLENE (OF AN-18)	
4-310-638-00	BAG, POLYETHYLENE (FOR PACKING MATERIALS)	
4-349-950-00	BAG, POLYETHYLENE (FOR ACCESSORIES)	
4-354-607-11	SHEET, CHANNEL	
4-365-238-00	LABEL (B), INDICATOR	
4-365-287-00	CUSHION (UPPER) (ASSY)	
4-365-288-00	CUSHION (LOWER) (ASSY)	
4-366-305-00	INDIVIDUAL CARTON (KV-1954R)	
4-366-304-00	INDIVIDUAL CARTON (KV-1955R)	
4-491-213-22	INSTRUCTION	
4-491-646-00	SCHEMATIC DIAGRAM	
4-493-765-21	MANUAL, INSTRUCTION	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

MEMO

RM-712

SERVICE MANUAL



March, 1983

SPECIFICATIONS

Remote control system	Infrared control
Power requirements	3 V dc Battery size AA × 2 (IEC Battery Designation R6)
Dimensions	Approx. 60 × 20 × 150 mm (w/h/d) ($2\frac{3}{8} \times \frac{7}{8} \times 6$ inches)
Weight	Approx. 130 g (4.6 oz) incl. batteries
Accessories supplied	Battery size AA (2 pcs.) Channel number segments (1 set)

Design and specifications subject to change without notice.

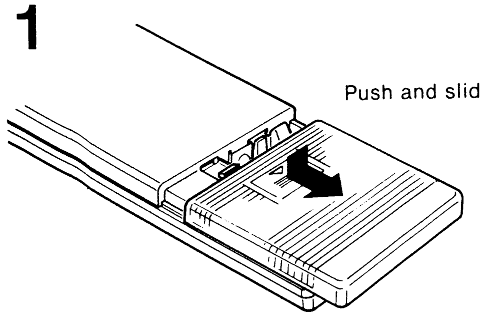
REMOTE COMMANDER

SONY®

1. BATTERY INSTALLATION

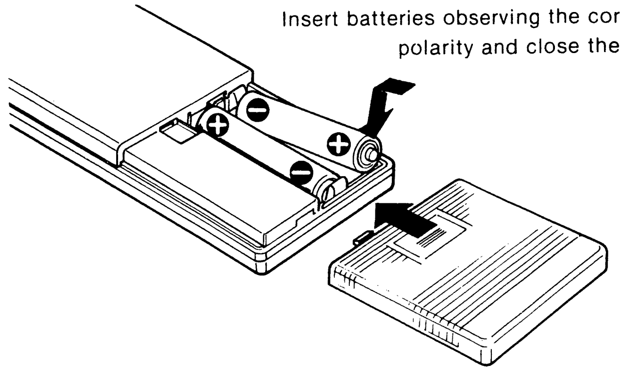
The Sony RM-712 Remote Commander operates on two supplied AA batteries (IEC designation R6).

1



Push and slide.

2



Insert batteries observing the correct polarity and close the lid.

2. FUNCTION OF BUTTONS ON THE REMOTE COMMANDER

Buttons and controls which have no equivalent on the TV

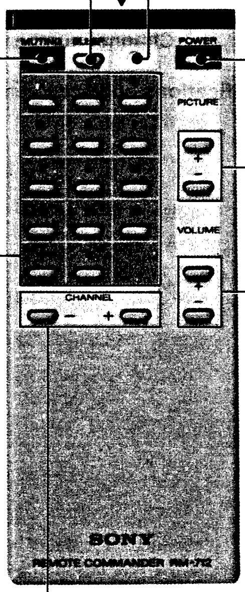
Transmitter
Point toward the remote control detector on the TV.

Indicator
Lights when the Remote Commander is operating. If the indicator does not light when any of the function buttons is pressed, battery replacement is required.

SLEEP button
To turn off the TV automatically after one hour, press this button. The sleep function will be released when the SLEEP button is pressed again, or the TV is turned off and on again.

MUTING button
To mute the sound immediately, press this button. To release sound muting, press this button again.

Channel select buttons
Channels are selected directly by pressing the desired button. If the channels have been reset on the TV, replace the channel number segments with the correct ones supplied with the Commander.



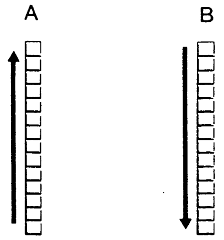
Buttons whose functions are the same as the TV buttons

POWER switch

PICTURE buttons

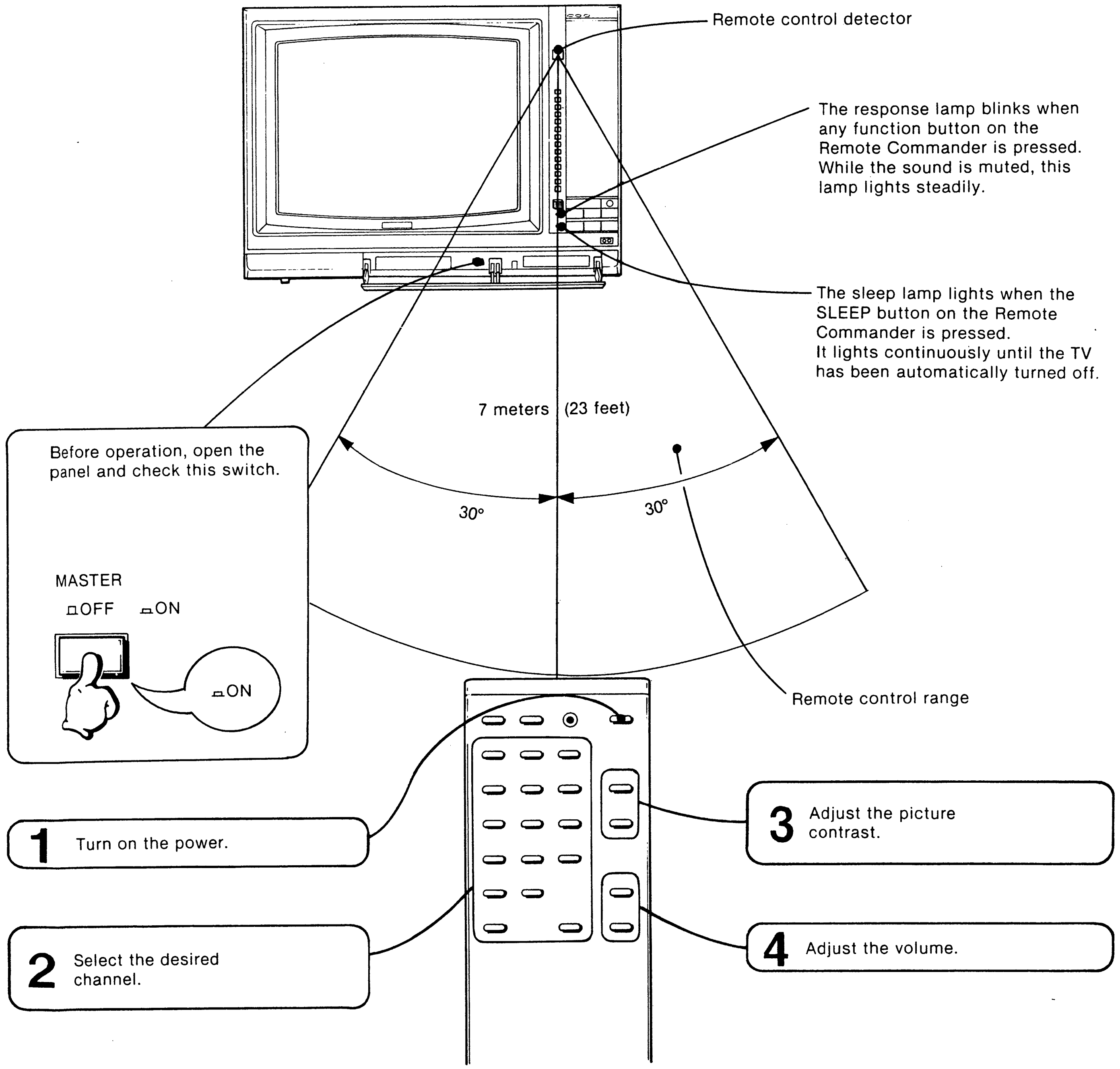
VOLUME buttons

CHANNEL scan buttons
Channels are changed continuously in sequence. When the – button is pressed, the channels are changed as indicated in Fig. A, and in Fig. B for when the + button is pressed.



Channel indicators on the TV

3. OPERATION OF THE REMOTE COMMANDER


7 meters (23 feet)
30°
30°
MASTER
OFF
ON
ON

Remote control detector

The response lamp blinks when any function button on the Remote Commander is pressed. While the sound is muted, this lamp lights steadily.

The sleep lamp lights when the SLEEP button on the Remote Commander is pressed.
It lights continuously until the TV has been automatically turned off.

Before operation, open the panel and check this switch.

Remote control range

1 Turn on the power.

2 Select the desired channel.

3 Adjust the picture contrast.

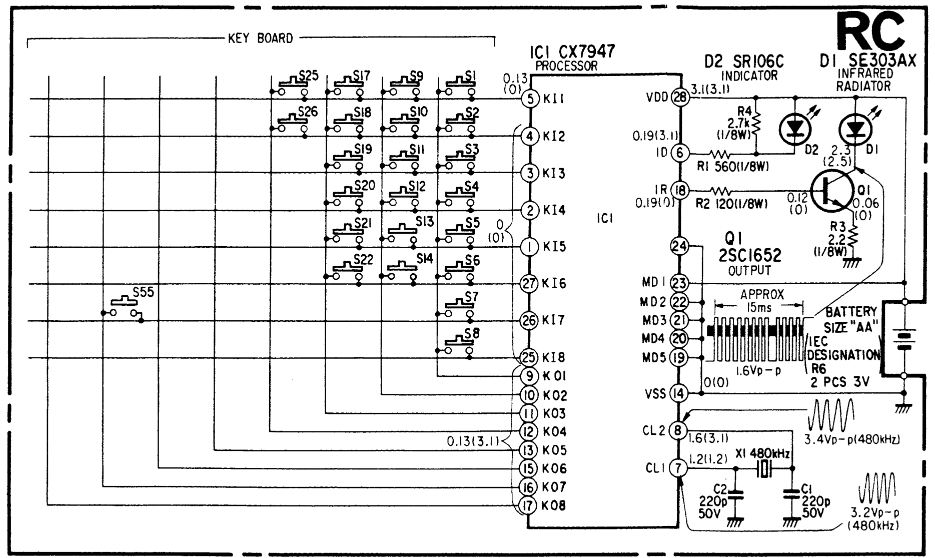
4 Adjust the volume.

Notes on the Remote Commander

- In normal operation, battery life is up to half a year. When the batteries are exhausted, the Remote Commander will not operate the TV properly. In this case, replace the batteries with new ones.
- When the Commander is not used for a long period of time, remove the batteries to avoid damage from possible battery leakage.
- Keep the Commander away from extremely hot or humid places.
- Avoid dropping any foreign objects into the Commander case when replacing batteries.
- The RM-712 Remote Commander may be used only with those Sony color TV models indicated in the operating instructions.

A | B | C | D | E | F | G

4. SCHEMATIC DIAGRAM


RC
KEY BOARD
IC1 CX7947
PROCESSOR
D2 SR106C
INDICATOR
D1 SE303AX
INFRARED RADIATOR
VDD 28 3.1(3.1)
R4 2.7k (1/8W)
0.19(3.1)
ID 6
R1 560(1/8W)
IR 18
0.19(0)
R2 120(1/8W)
Q1 2SC1652 OUTPUT
R3 2.2 (1/8W)
2.3 (2.5)
0.12 (0)
0.06 (0)
MD1 23
MD2 22
MD3 21
MD4 20
MD5 19
VSS 14
APPROX 15ms
1.6Vp-p
0(0)
BATTERY SIZE "AA" (IEC DESIGNATION R6) 2 PCS 3V
CL2 8
1.6(3.1)
3.4Vp-p(480kHz)
CL1 7
1.2(1.2)
X1 480kHz
C2 220p 50V
C1 220p 50V
3.2Vp-p (480kHz)
5 KI1
4 KI2
3 KI3
2 KI4
1 KI5
27 KI6
26 KI7
25 KI8
9 KO1
10 KO2
11 KO3
12 KO4
13 KO5
15 KO6
16 KO7
17 KO8
0.13 (0)
0 (0)
0.13(3.1)
IC1
S1 S2 S3 S4 S5 S6 S7 S8
S9 S10 S11 S12 S13 S14
S17 S18 S19 S20 S21 S22
S25 S26
S55

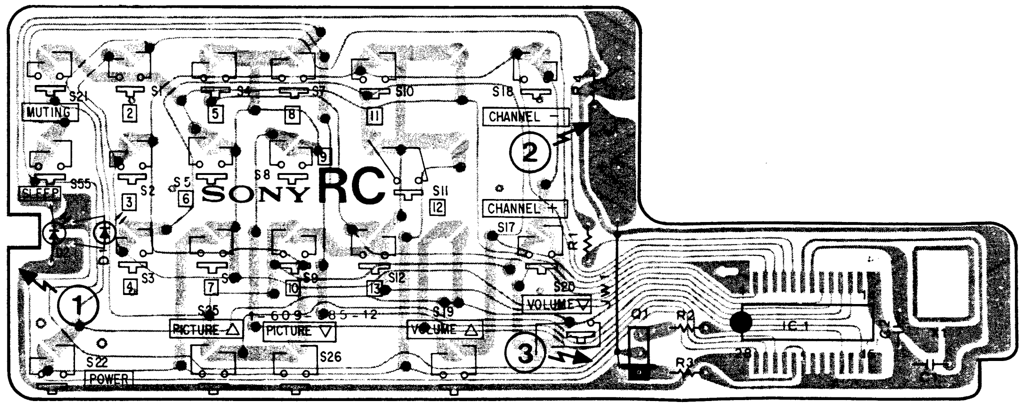
KEY MATRIX TABLE

	KO1	KO2	KO3	KO4	KO5	KO6	KO7	KO8
KI1	S1 CH-2	S9 CH-10	S17 CHANNEL +	S25 PICTURE +	S33	S41	S49	S57
KI2	S2 CH-3	S10 CH-11	S18 CHANNEL −	S26 PICTURE −	S34	S42	S50	S58
KI3	S3 CH-4	S11 CH-12	S19 VOLUME +	S27	S35	S43	S51	S59
KI4	S4 CH-5	S12 CH-13	S20 VOLUME −	S28	S36	S44	S52	S60
KI5	S5 CH-6	S13 ☼	S21 MUTING	S29	S37	S45	S53	S61
KI6	S6 CH-7	S14 ☼	S22 POWER	S30	S38	S46	S50	S62
KI7	S7 CH-8	S15	S23	S31	S39	S47	S55 SLEEP	S63
KI8	S8 CH-9	S16	S24	S32	S40	S48	S56	S64

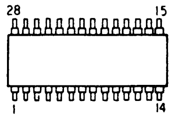
- All voltages are in V (volt).
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ/V digital multimeter.
  No marking: S1 is depressed.
  ( ): no depressed.
- Voltage variations may be noted due to normal production tolerances.

5. PRINTED WIRING BOARD

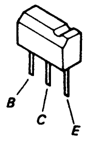
— Conductor Side —


SONY RC
MUTING
SLEEP
S55
CHANNEL −
CHANNEL +
S18
S17
S10
S11
S21
S2
S3
S5
S8
S12
S19
S20
S22
S25
S26
POWER
PICTURE △
PICTURE ▽
VOLUME △
VOLUME ▽
IC-1
Q1
R2
R3
①
②
③

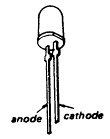
CX7947



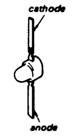
2SC1652



SE303AX


anode
cathode

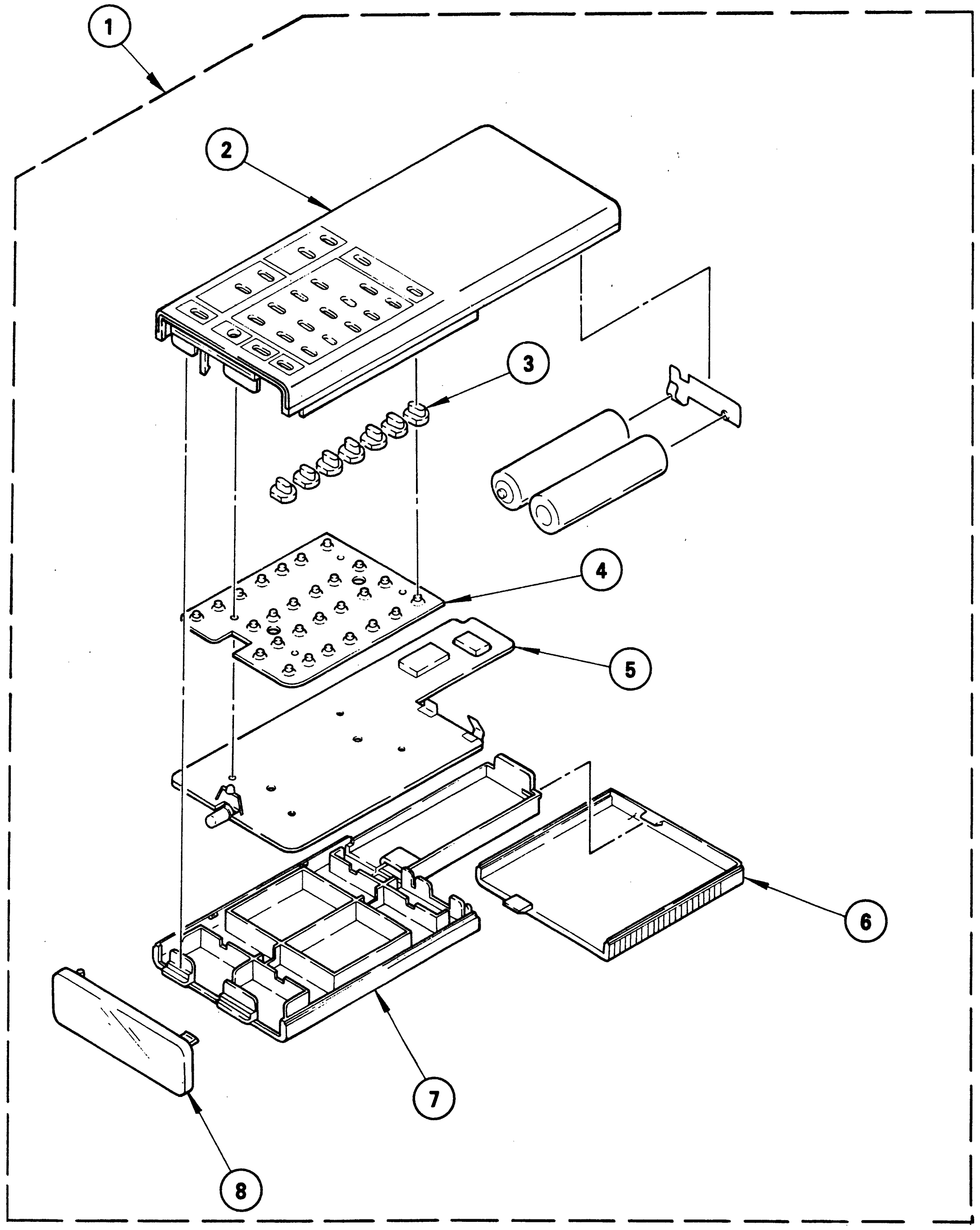
SR106C


cathode
anode

1 2 3 4 5 6 7 8 9 10

6. EXPLODED VIEW

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- As to the part numbered with E-, refer to the electrical parts list.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



No.	Part No.	Description	Remark
1	A-1470-614-A	COMMANDER ASSY (RM-712)	2,3,4,5 6,7,8
2	X-4365-201-0	CASE ASSY, UPPER	
3	4-365-201-01	KEY TOP, TUNING	
4	4-365-202-00	SHEET, RUBBER	
5	♠:1-609-385-00	RC BOARD	
6	4-350-931-00	COVER, BATTERY	
7	4-350-933-00	CASE, LOWER	
8	4-350-929-00	PLATE, FROSTED	

7. ELECTRICAL PARTS LIST

NOTE:
- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.
- Items marked " ♠ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

CAPACITORS
- MF : μF, PF : μμF

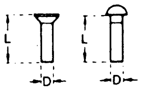
RESISTORS
- All resistors are in ohms
- F : nonflammable

Ref.No	Part No.	Description				Remark
	♠:1-609-385-00	RC BOARD ********				
	4-350-923-00	TERMINAL (A), BATTERY				
	4-350-924-00	TERMINAL (B), BATTERY				
		CAPACITOR				
C1	1-102-110-00	CERAMIC	220PF	10%	50V	
C2	1-102-110-00	CERAMIC	220PF	10%	50V	
		DIODE				
D1	8-719-193-03	DIODE SE303AX				
D2	=>8-719-100-06	DIODE SR106C				
		IC				
IC1	8-759-902-22	IC CX7947				
		TRANSISTOR				
Q1	8-729-965-22	TRANSISTOR 2SC1652				
		RESISTOR				
R1	1-247-825-00	CARBON	560	5%	1/6W	
R2	1-247-809-00	CARBON	120	5%	1/6W	
R3	1-247-767-00	CARBON	2.2	5%	1/6W	
R4	1-247-841-00	CARBON	2.7K	5%	1/6W	
		CRYSTAL				
X1	1-527-476-00	OSCILLATOR, CERAMIC				

HARDWARE NOMENCLATURE

Screw: – P 3 x 10

L: Length in mm
D: Diameter in mm
Type of head
Indicated slotted-head only.
Unless otherwise indicated, it means cross-recessed head (Phillips type).

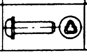
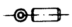
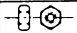
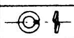


Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Nut, Washer, Retaining ring:

N 3

Diameter of usable screw or shaft
Reference designation

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation
Consumer Products Group
Technical Support Dept.

83C0559-1
Printed in Japan
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1846

KV-1954R/1955R

RM-712

SONY®

SERVICE MANUAL

US Model
KV-1954R
Chassis No. SCC-470C-A
KV-1955R
Chassis No. SCC-470D-A

SUPPLEMENT-1

SUBJECT: ADJUSTMENT

File this supplement-1 with the service manual.

TABLE OF CONTENTS

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1-2. CONVERGENCE 3
1-3. WHITE BALANCE 3

2. CIRCUIT ADJUSTMENTS

2-1. C BOARD ADJUSTMENT 6
2-2. A BOARD ADJUSTMENT (SAFETY RELATED ADJUSTMENT) 7
2-3. A BOARD ADJUSTMENT 9

MICROFILM

CTV

SECTION 1
SETUP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustment should be performed with rated power supply voltage unless otherwise noted.

Control, button and switch should be set as follows unless otherwise noted:

PICTURE button .... maximum
(Press + PICTURE button)
BRIGHT control .... maximum
(fully clock wise)
AFT switch .... ON

Perform the adjustment in order as follows.

1. Beam Landing
2. Convergence
3. White Balance

Note: Test Equipment Required.
1. Color-bar/Pattern Generator
2. Degausser

1-1. BEAM LANDING

Preparation:

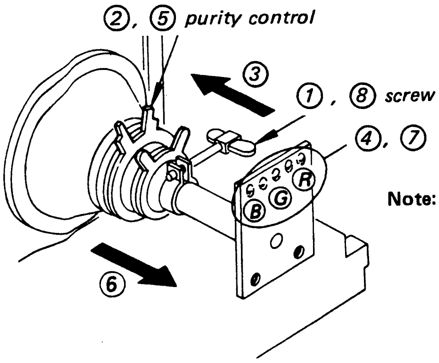
- Feed in the white pattern.
- Before starting, degauss the entire screen.

1. Loosen deflection yoke screw.
2. Adjust purity control as shown in Fig. 1-1.
3. Slide deflection yoke as far forward as it will go.
4. Disconnect leads Ⓖ and Ⓑ on the C board.
5. Adjust purity control to center vertical red band as shown in Fig. 1-2.
6. Slide deflection yoke back for a uniform red screen.
7. Check green and blue rasters for uniformity by performing the same way as steps 4, 5 and 6.

   To get a uniform green screen, connect lead Ⓖ on the C board and disconnect leads Ⓡ and Ⓑ.

   To get a uniform blue screen, connect lead Ⓑ on the C board and disconnect leads Ⓡ and Ⓖ.

   After these checks, connect the leads Ⓡ, Ⓖand Ⓑ.
8. Tighten the deflection yoke screw.
9. Check if mislanding appears at corners a–d as shown in Fig. 1-3. If mislanding is observed, correct it as shown in Fig. 1-3.
10. Confirm that beam landing is correct when the receiver is faced in all directions.


②, ⑤ purity control
③
①, ⑧ screw
④, ⑦
B
G
R
⑥

Note: *The circled numbers (① – ⑧) show above steps.*

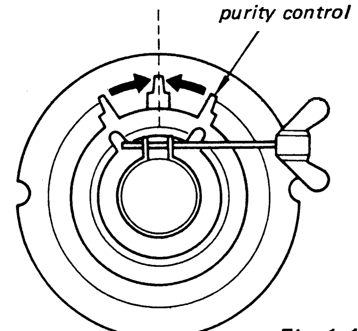

purity control

Fig. 1-1.

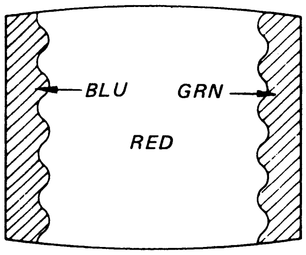


Fig. 1-2.

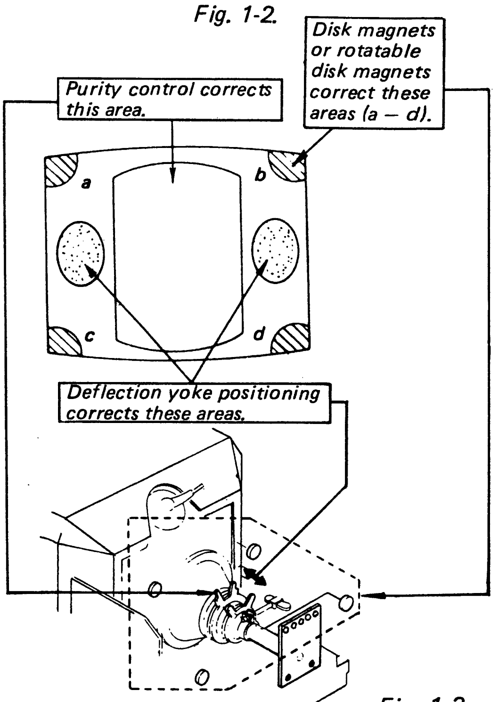

Disk magnets or rotatable disk magnets correct these areas (a – d).
Purity control corrects this area.
a
b
c
d
Deflection yoke positioning corrects these areas.

Fig. 1-3.

KV-1954R/1955R
RM-712

1-2. CONVERGENCE

Preparation:

- Before starting, perform FOCUS, H. SIZE and V. SIZE adjustments.
- Set BRIGHT control to fully counterclockwise.
- Feed in the dot pattern.

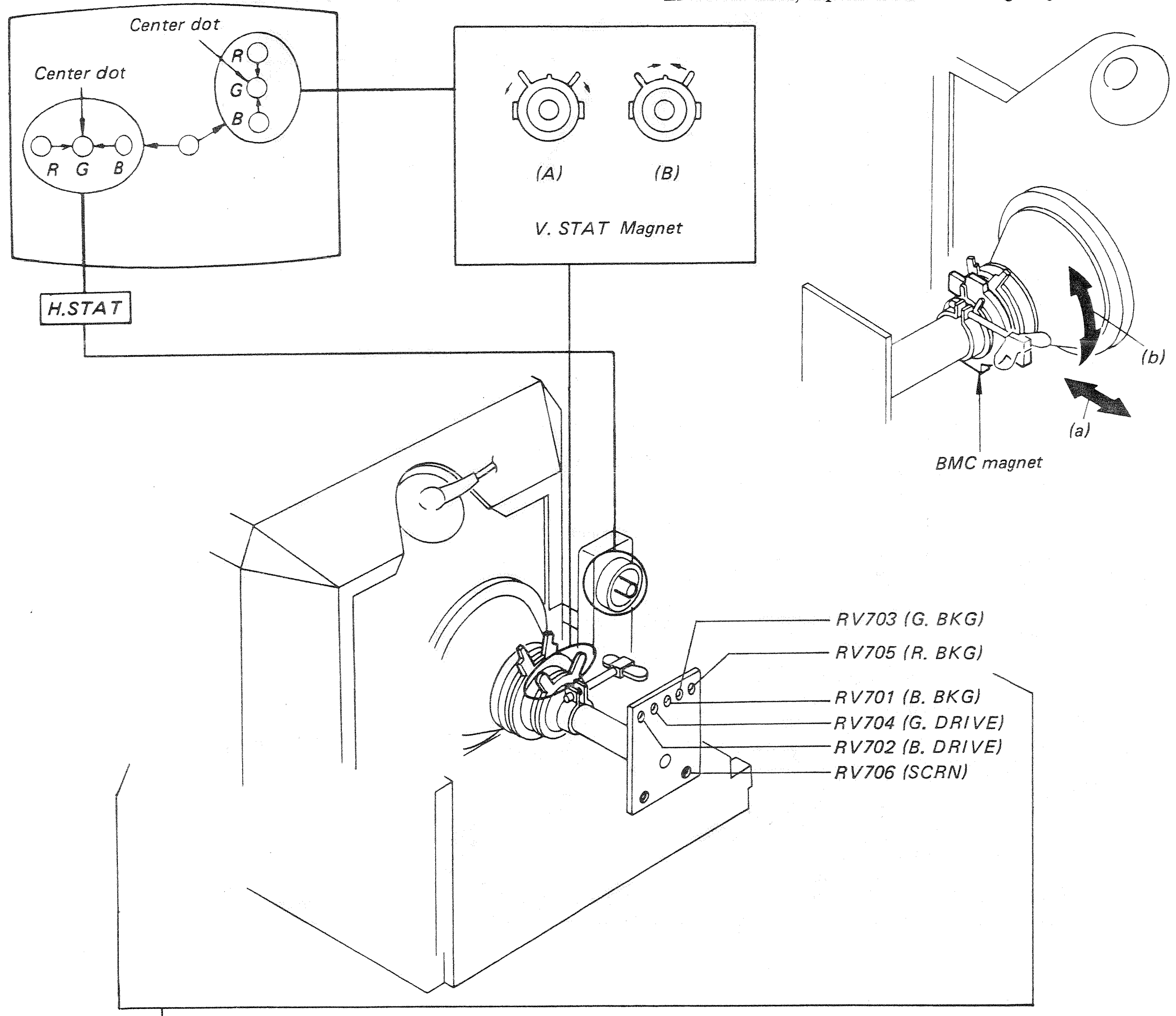
(1) Horizontal and Vertical Static Convergence

If blue dot does not coincide with red and green dots, perform following steps.

Move BMC magnet (a) to correct insufficient H. static convergence.

Rotate BMC magnet (b) to correct insufficient V. static convergence.

In either case, repeat Beam Landing Adjustment.


Center dot
Center dot
R
G
B
R G B
(A)
(B)
V. STAT Magnet
H.STAT
(b)
(a)
BMC magnet
RV703 (G. BKG)
RV705 (R. BKG)
RV701 (B. BKG)
RV704 (G. DRIVE)
RV702 (B. DRIVE)
RV706 (SCRN)

1-3. WHITE BALANCE

Feed in the cross-hatch pattern.

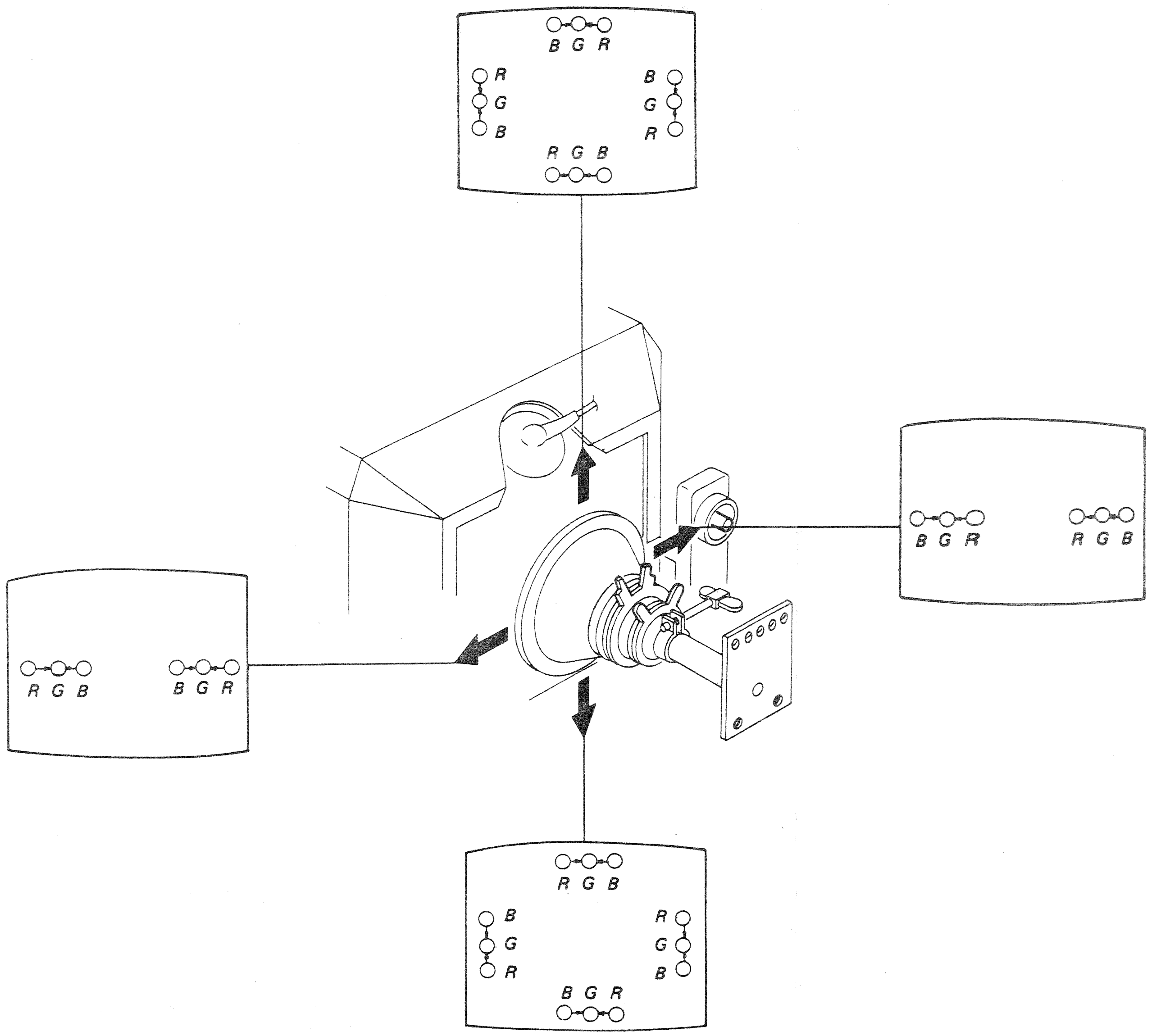
1. Press-PICTURE button to obtain a minimum picture position and set BRIGHT control to fully counterclockwise.
2. Turn RV702 (B. DRIVE) and RV704 (G. DRIVE) fully clockwise.
3. Set RV705 (R. BKG), RV703 (G. BKG), and RV701 (B.BKG) to mechanical center.
4. Turn RV706 (SCRN) slowly to obtain a faintly visible cross-hatch. Note the color that first becomes visible by turning RV706. Do not turn a BKG control for this color.
5. Adjust the other two BKG controls for best white balance (neutral gray) of the faint cross-hatch.
6. Press + PICTURE button to obtain a maximum picture position and set BRIGHT control to fully clockwise. Observe the screen and adjust the DRIVE controls for best white balance.
7. Repeat Steps 1 through 6 several times.

(2) Dynamic Convergence Adjustment

Preparation:

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.


B G R
R
G
B
B
G
R
R G B
B G R
R G B
R G B
B G R
R G B
B
G
R
R
G
B
B G R

SECTION 2
CIRCUIT ADJUSTMENTS

Note: (1) **TEST EQUIPMENT REQUIRED**

1. Oscilloscope
2. Digital multimeter
3. Color-bar/pattern generator
4. Variable auto-transformer
5. Audio frequency oscillator

(2) **INPUT SIGNAL**

When marking these adjustment, supply a crosshatch, a color-bar, or an off-air signal.

(3) **CONTROL SETTING**

Controls and switch should be set as follows when making checks and adjustments unless otherwise noted.

HUE control }
COLOR control } . . . . mechanical center
PICTURE control . . . . . initial setting
AFT switch . . . . ON

(4) These adjustment should be performed with rated power supply voltage, unless otherwise noted.

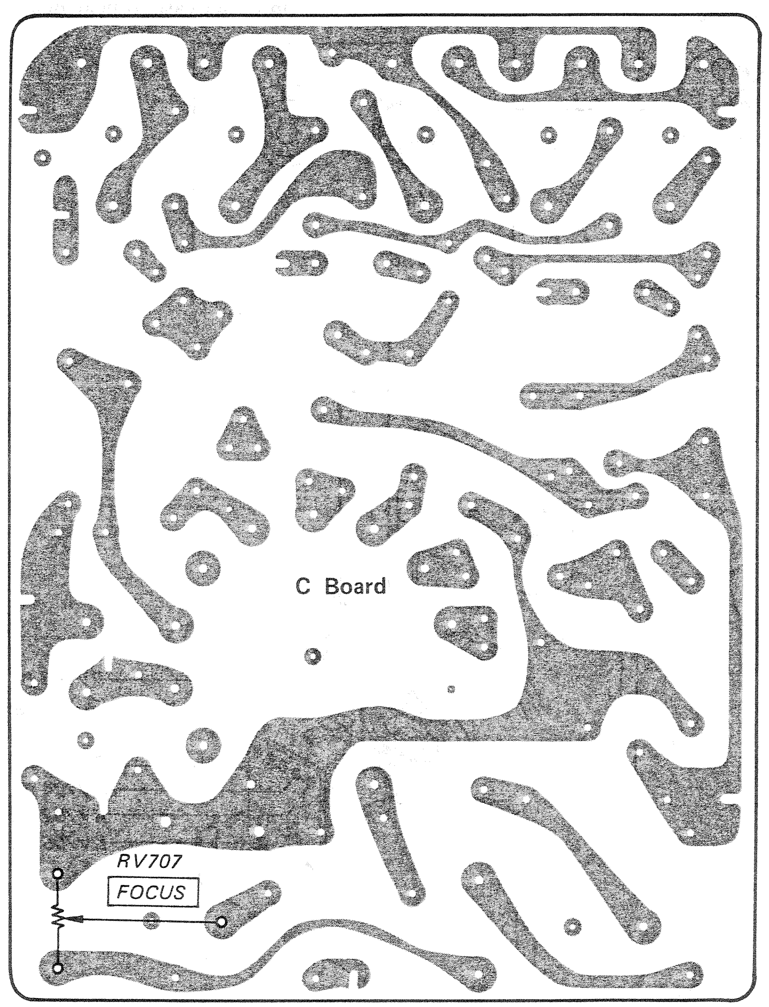
(5) **CIRCUIT ADJUSTMENT**

Adjustment	Circuit board	Page
FOCUS	C	6
⧖ R582, 583 ADJUSTMENT	A	7 and 8
CHECKING AFTER H. V. R. REPLACEMENT		
MAXIMUM +B VOLTAGE CONFIRMATION		
H FREQUENCY	A	9 and 10
V SIZE		
PIN AMP		
H SIZE		
14.3 MHz ADJUSTMENT		
ACC and HUE CENTER		
SUB CONTRAST		
3.58 MHz TRAP		
TUNER AGC		
AUDIO CIRCUIT CHECK		

2-1. C BOARD ADJUSTMENT

FOCUS

Adjust RV707 for a best focus.



2-2. A BOARD ADJUSTMENT (SAFETY RELATED ADJUSTMENT)

☒ R582, R583 ADJUSTMENT

When replacing the following components, make this adjustment.

R582, R583, IC501, IC503, R558

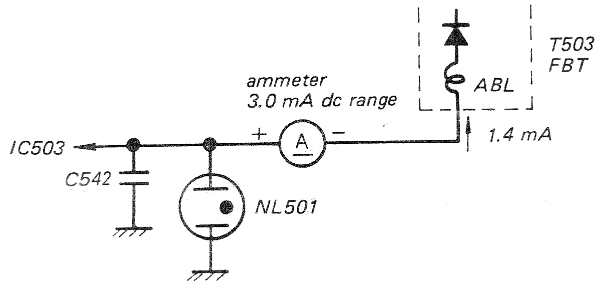
Note: The connection Point for R560 and connector A-10 is the hold down check point Ⓐ.

(1) Before Adjustment

1. *Supply 120 V ac to with variable auto-transfomer.*
2. *Confirm that there is more than 12.15 V at the hold down check point Ⓐ.*
3. *Remove ac power supply.*

(2) Readjustment Procedure

1. *Disengage ABL terminal of FBT from the foil and connect the ammeter as shown to measure the ABL terminal current.*



2. *Supply 120 V ac to with variable auto-transfomer.*
3. *Receive a stable signal such as an all-white signal and adjust ABL current to 1.4 mA with PICTURE, BRIGHT, etc. controls.*
4. *Confirm that the HV HOLD DOWN CIRCUIT operates and that raster disappears when $16.80^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply. When raster disappears, cut ac voltage and applied dc voltage immediately.*
5. *Supply 120 V ac to with variable auto-transfomer.*
6. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when $16.21^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply.*

   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut ac and applied dc voltage.

7. *Receive a stable signal such as a dot signal and adjust ABL current for 85 µA with PICTURE and BRIGHT controls.*
8. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when $17.21^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply.*

   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut ac and applied dc voltage.

9. *Confirm that the HV HOLD DOWN CIRCUIT operates and raster disappears when $18.27^{+0.00}_{-0.10}$ V is applied to hold down check point Ⓐ from an external DC power supply. When raster disappears, cut ac voltage and applied dc voltage immediately.*
10. *Adjust R582, R583 so that steps 3, 4, 6, and 7, 8, 9 are satisfied.*
11. *Remove external DC power supply and DC ammeter.*
12. *Solder FBT ABL pin.*

CHECKING AFTER H.V.R. REPLACEMENT

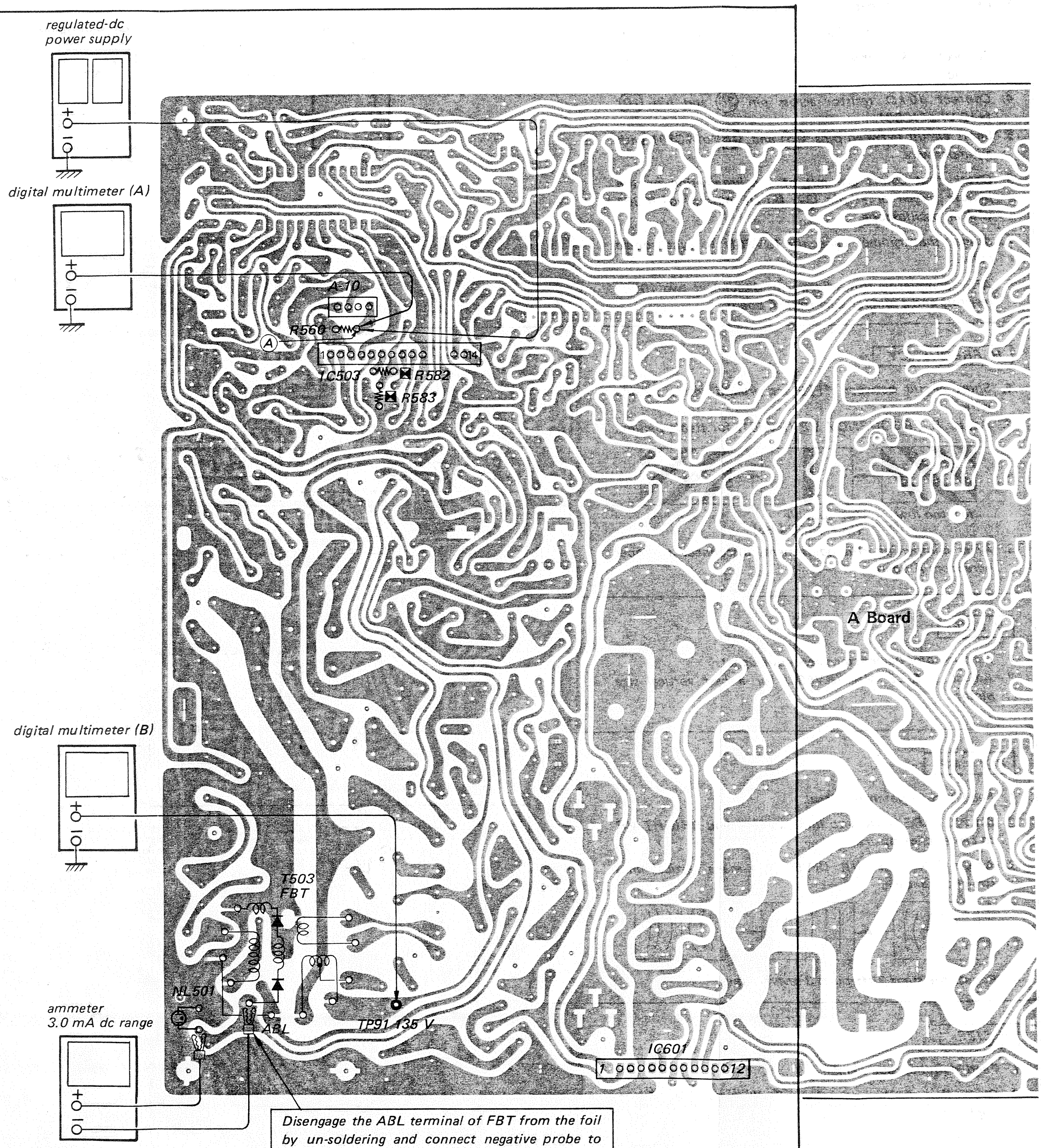
*After replacing H.V.R., *confirm that there is more than 12.15 V on HOLD DOWN check point Ⓐ.*

** This check is to be performed when H.V.R. only is replaced, and has no relation to the HV hold down circuit readjustment for replacement of parts marked ◪ .*

Note: The connection Point for R560 and connector A-10 is the hold down check point Ⓐ.

CHECK AFTER IC601 REPLACEMENT

1. *Supply 130 V ac to with variable auto-transformer.*
2. *Tune in an off-air signal.*
3. *Set PICTURE button to initial setting and BRIGHT control to mechanical center.*
4. *Confirm the voltage of TP91 is less than 137.30 V dc.*
5. *If step 4 is not satisfied, replace IC601 in A board and repeat above steps.*



Disengage the ABL terminal of FBT from the foil by un-soldering and connect negative probe to the ABL PIN of FBT.

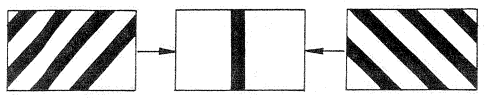
2-3. A BOARD ADJUSTMENT

14.3 MHz fo ADJUSTMENT

1. *Feed in color-bar/pattern generator signal.*
2. *Turn both HUE and COLOR VRs to mechanical center.*
3. *Connect 10 kΩ resistor across pin ㉚ of IC301 and ground.*
4. *Connect 10 kΩ resistor across pin ㊳ and pin ⑩ (+12 V) of IC301.*
5. *Short circuit between pins ⑮ and ⑯ of IC301 with a jumper wire.*
6. *Check that colors are out of synchronization on the picture screen or at pin ㉜ (BLUE output) of IC301 with an oscilloscope.*
7. *Adjust the trimmer capacitor (CV301) to synchronize color.*
8. *After completing this adjustment, disconnect two 10 kΩ resistors and a jumper wire from A board.*

H FREQUENCY

1. *Short circuit between TP86 and ground with a jumper wire.*
2. *Adjust H FREQUENCY VR (RV501) for stable picture.*



fo: too low *fo: suitable (fo = 15,734 Hz)* *fo : too high*

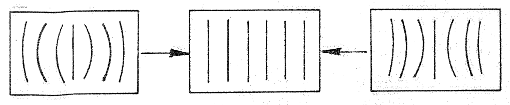
3. *After completing this adjustment, disconnect a jumper wire from A board.*

V SIZE

1. *Feed in color-bar/pattern generator signal.*
2. *Adjust V SIZE VR (RV503) for a best vertical size picture.*

PIN AMP

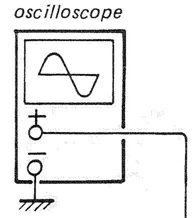
1. *Feed in cross hatching signal.*
2. *Set PICTURE button to initial setting, and BRIGHT VR to center click position.*
3. *Adjust PIN AMP VR (RV504) to make vertical lines straight as shown.*

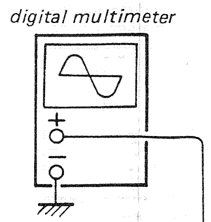


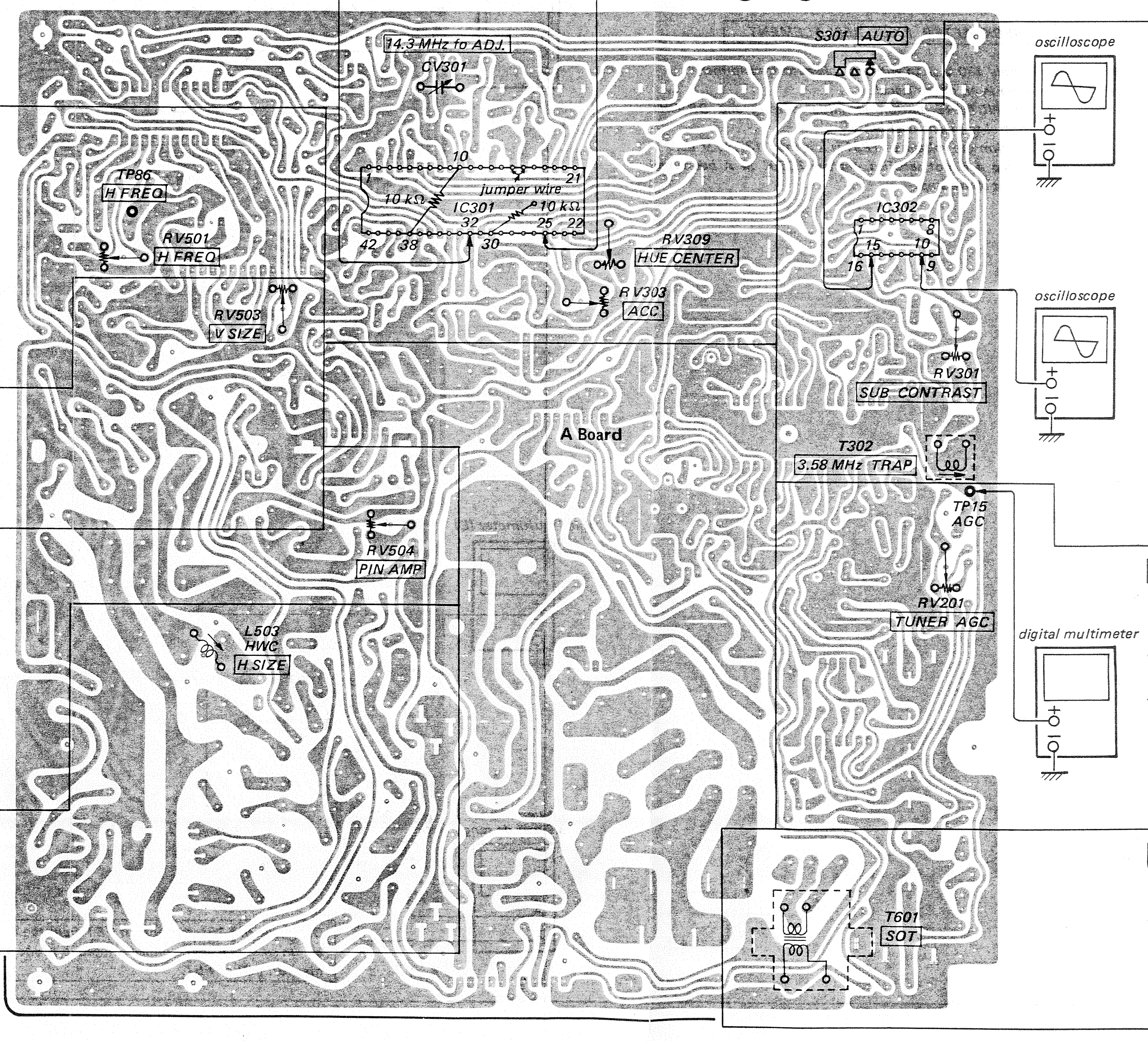
4. *Repeat the steps 1 through 3 several times.*

H SIZE

1. *Feed in monoscope signal.*
2. *Check that the horizontal amplitude is 14.8 ±0.6 frame (digital monosco).*


oscilloscope


digital multimeter


14.3 MHz fo ADJ.
CV301
S301 AUTO
TP86
H FREQ
RV501
H FREQ
10
21
jumper wire
10 kΩ
IC301
10 kΩ
32
25
22
42
38
30
RV309
HUE CENTER
RV303
ACC
RV503
V SIZE
IC302
1
8
15
10
16
9
RV301
SUB CONTRAST
A Board
T302
3.58 MHz TRAP
TP15
AGC
RV201
TUNER AGC
RV504
PIN AMP
L503
HWC
H SIZE
T601
SOT
oscilloscope
oscilloscope
digital multimeter

ACC and HUE CENTER

1. *Feed in color-bar/pattern generator signal.*
2. *Turn AUTO switch (S301) to ON position, turn both HUE and COLOR VRs to mechanical center and press PICTURE button to initial setting.*
3. *While observing signal at pin ㉜ (BLUE output) of IC301 with an oscilloscope, adjust ACC VR (RV303) and HUE CENTER VR (RV309) until output waveform as shown in Fig. 1 is obtained.*
   - *ACC adjustment*
     First adjust levels ① and ②, and then, adjust levels ③ and ④.
4. *Check that voltage at ACC VR center (at pin ㉕ of IC301) is below 9.0 V dc.*

Note: That 9.0 V dc corresponds to 12 V on the 12 V line. (Adjust to 9.0 V dc if it is above 9.0 V dc)

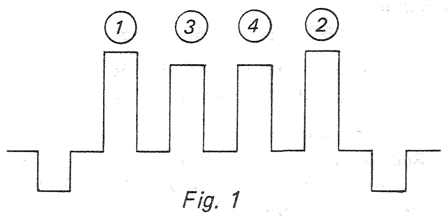


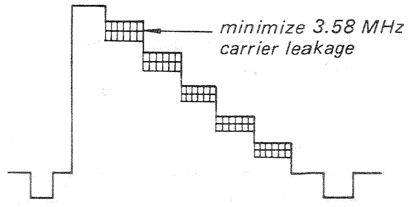
Fig. 1

SUB CONTRAST

1. *Feed in monoscope signal.*
2. *Observe signal at pin ⑮ of IC302 with an oscilloscope.*
3. *Adjust SUB CONTRAST VR (RV301) until the pedestal white signal level becomes 1.3 Vp-p.*

3.58 MHz TRAP

1. *Feed in color-bar/pattern generator signal.*
2. *Adjust T302 until the 3.58 MHz component in Y out waveform at pin ⑩ of IC302 becomes a minimum as shown below.*


minimize 3.58 MHz carrier leakage

TUNER AGC

1. *Connect a digital multimeter (internal resistance: 10 MΩ) to TP15 (AGC).*
2. *Feed in VHF channel 13 or color-bar/pattern generator signals, adjust tuning.*
3. *Turn and bring BRIGHT VR to the click position (initial setting) and press PICTURE button to initial setting.*
4. *Check that the TUNER +B terminal voltage is 8.5 –9.5 V dc.*
5. *Adjust TUNER AGC VR (RV201) until AGC voltage at TP15 becomes $6.5^{+0}_{-0.5}$ V dc.*

AUDIO CIRCUIT CHECK

1. *Feed in 400 Hz 100 % modulated signal (±25 kHz).*
2. *Check the 2ndary output of the sound output transformer (T601).*
   (Connect 8 Ω resistive load instead of speakers.)

   Measured condition: Press PICTURE button 4.0 V rms min position (2.0 W min).

MEMO

8310557-1
Printed in Japan

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Sony Corporation

SONY
TRINITRON® COLOR TV
KV-1954R/1955R
RM-712

US Model

KV-1954R

Chassis No. SCC-470C-A

KV-1955R

Chassis No. SCC-470D-A

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note:

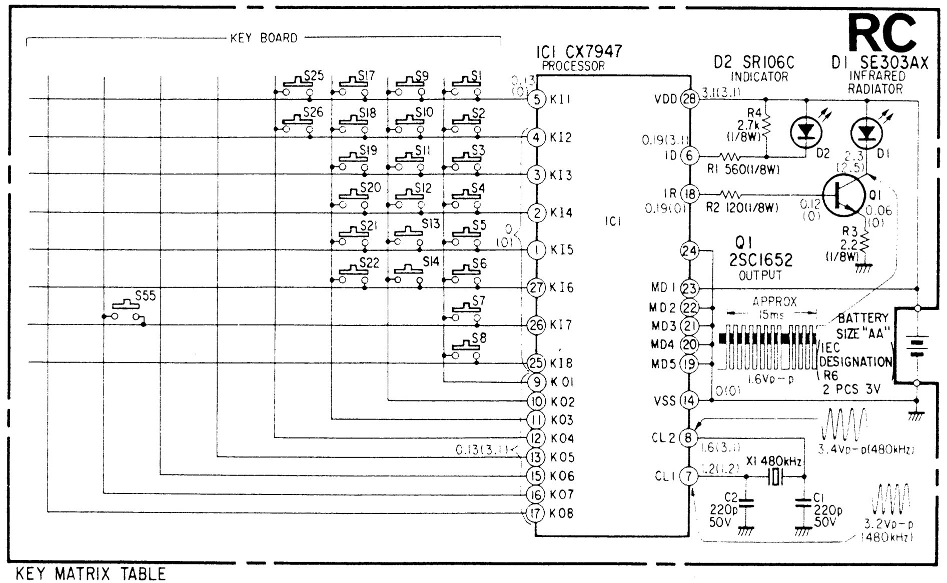
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼ W unless otherwise noted. k: 1000 Ω, M: 1000 kΩ.
- ▭ : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation.
- The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪ , make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⧓ and repeat the adjustment until the specified value is achieved. (Refer to R582 and R583 adjustment on page 11.)

  When replacing the part in below table, be sure to perform the related adjustment.

Part replaced (◪)	Adjustment (⧓)
IC501, IC503, R558, R582, R583	R582, R583 adjustment

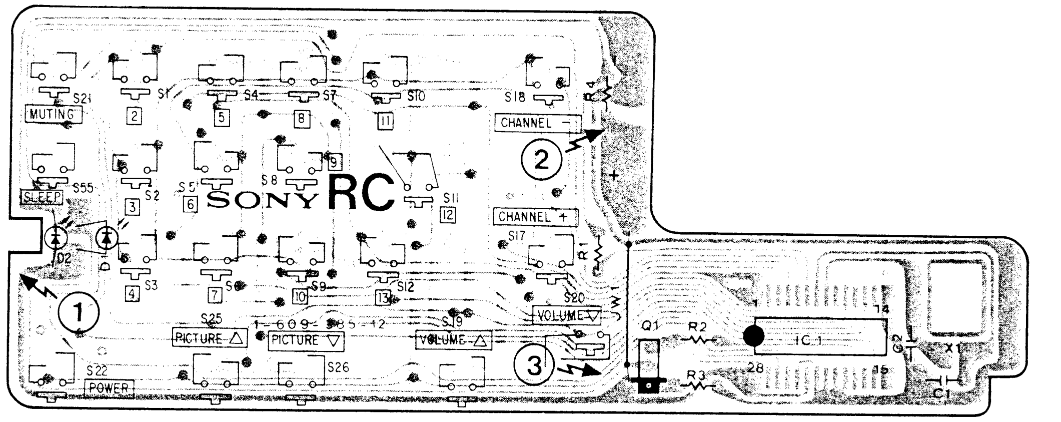
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- All voltages are in V.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- ——— : B + bus.
- - - - : B – bus.
- Voltage variations may be noted due to normal production tolerances.
- ▭ : adjustment for repair.
- The hold down check point is the cross-point of R560 and A-10 connector.
- Do not touch pin ㉔ of IC501 marked◆ on A board with probe of digital multimeter. It will result in off position of the set.

REMOTE COMMANDER RM-712


RC
KEY BOARD
IC1 CX7947
PROCESSOR
D2 SR106C
INDICATOR
D1 SE303AX
INFRARED
RADIATOR
Q1
2SC1652
OUTPUT
BATTERY
SIZE "AA"
IEC
DESIGNATION
R6
2 PCS 3V
X1 480kHz
C2 220p 50V
C1 220p 50V
3.2Vp-p (480kHz)
3.4Vp-p (480kHz)
APPROX 15ms
1.6Vp-p
VDD
VSS
CL1
CL2
MD1
MD2
MD3
MD4
MD5
K11
K12
K13
K14
K15
K16
K17
K18
K01
K02
K03
K04
K05
K06
K07
K08
S55

KEY MATRIX TABLE

	K01		K02		K03	K04	K05	K06	K07	K08
K11	S1	CH−2	S9	CH−10	S17 CHANNEL +	S25 PICTURE +	S33	S41	S49	S57
K12	S2	CH−3	S10	CH−11	S18 CHANNEL −	S26 PICTURE −	S34	S42	S50	S58
K13	S3	CH−4	S11	CH−12	S19 VOLUME +	S27	S35	S43	S51	S59
K14	S4	CH−5	S12	CH−13	S20 VOLUME −	S28	S36	S44	S52	S60
K15	S5	CH−6	S13	☼	S21 MUTING	S29	S37	S45	S53	S61
K16	S6	CH−7	S14	☼	S22 POWER	S30	S38	S46	S50	S62
K17	S7	CH−8	S15		S23	S31	S39	S47	S55 SLEEP	S63
K18	S8	CH−9	S16		S24	S32	S40	S48	S56	S64

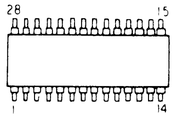

SONY RC
MUTING
SLEEP
POWER
CHANNEL −
CHANNEL +
PICTURE △
PICTURE ▽
VOLUME △
VOLUME ▽
①
②
③
IC1
Q1
R2
R3
D2

- All voltages are in V (volt).
- Voltages are dc with respect to ground unle noted.
- Readings are taken with a 10 MΩ/V digital

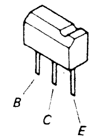
  No marking: S1 is depressed.

  ( ): no depressed.
- Voltage variations may be noted due to no tion tolerances.

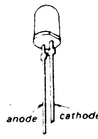
CX7947

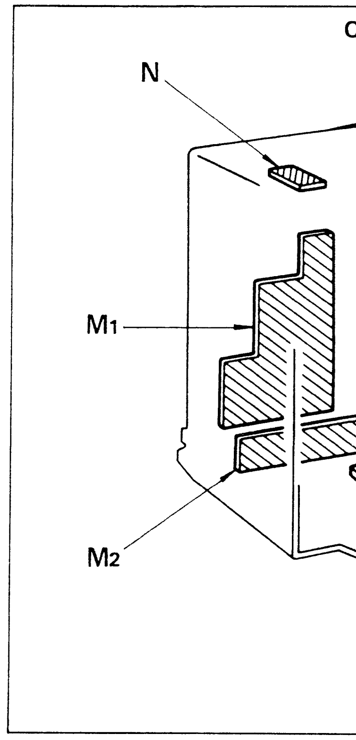


2SC1652

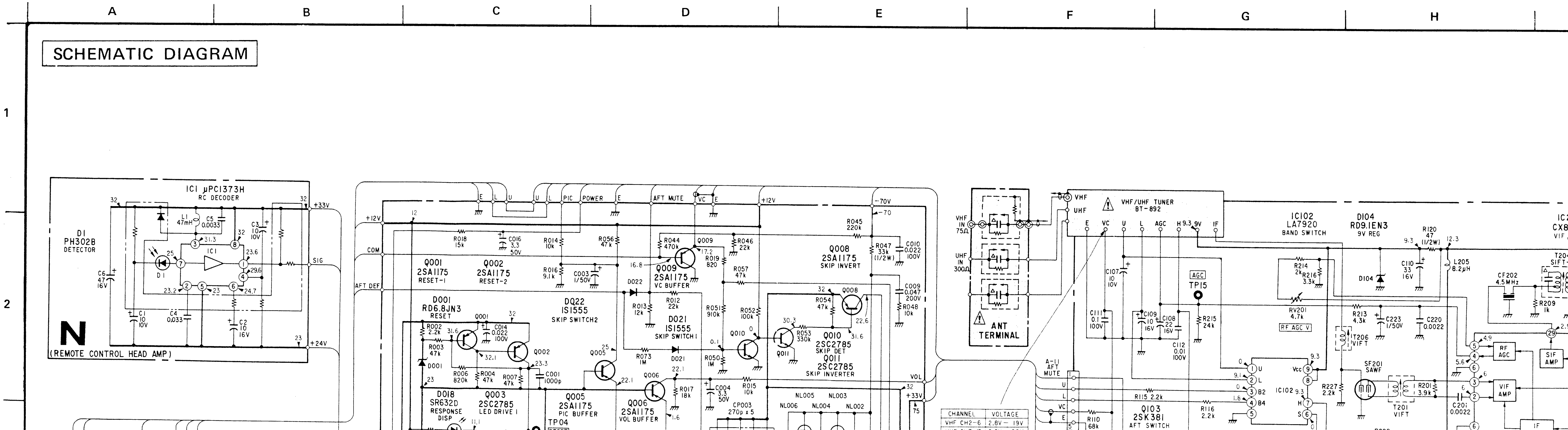


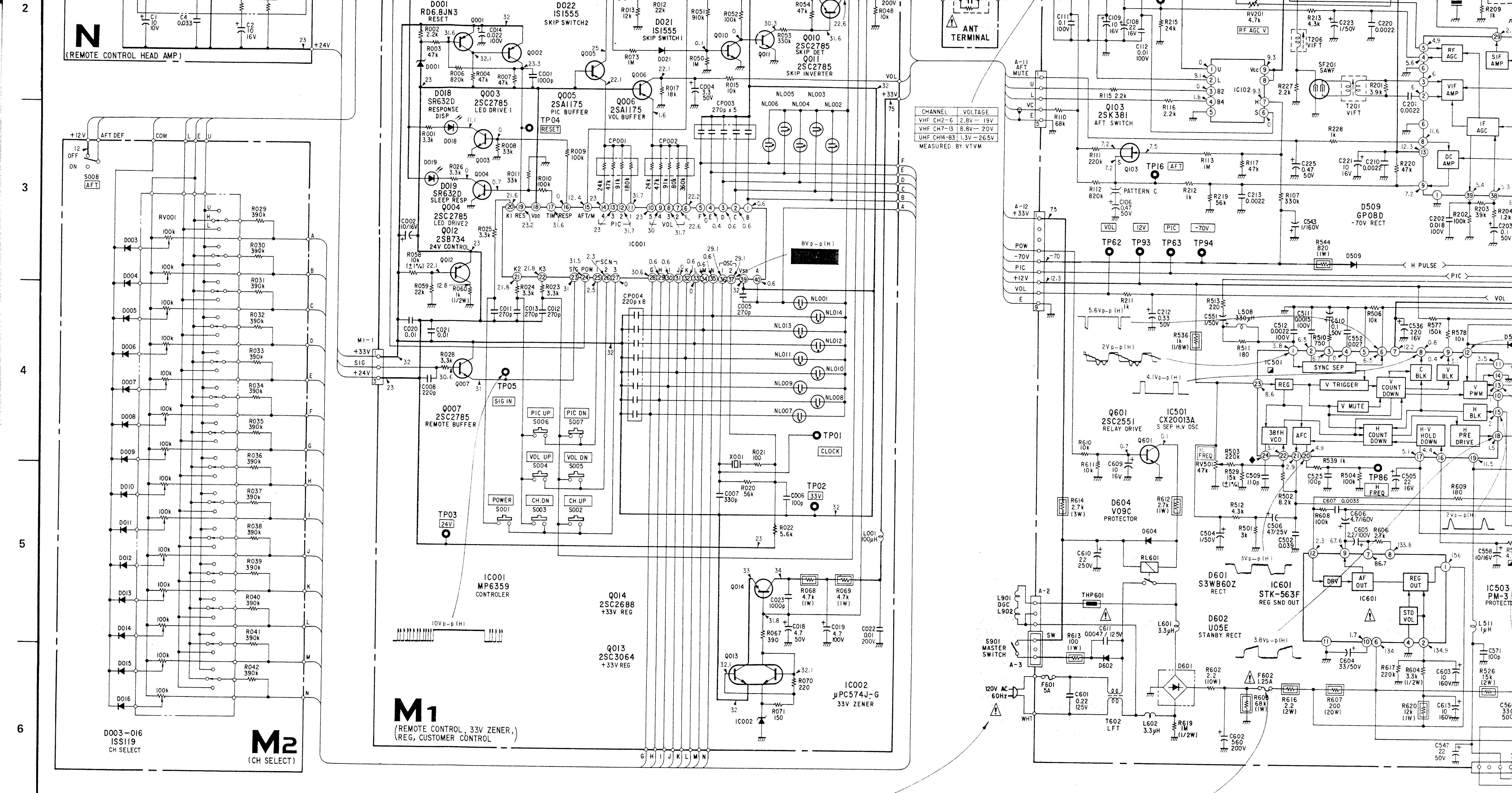
SE303AX


anode
cathode



SCHEMATIC DIAGRAM


A
B
C
D
E
F
G
H
1
2
IC1 µPC1373H
RC DECODER
D1
PH302B
DETECTOR
N
(REMOTE CONTROL HEAD AMP)
Q001 2SA1175 RESET-1
Q002 2SA1175 RESET-2
D001 RD6.8JN3 RESET
DQ22 1S1555 SKIP SWITCH2
Q009 2SA1175 VC BUFFER
D021 1S1555 SKIP SWITCH1
Q008 2SA1175 SKIP INVERT
Q010 2SC2785 SKIP DET
Q011 2SC2785 SKIP INVERTER
D018 SR632D RESPONSE DISP
Q003 2SC2785 LED DRIVE 1
Q005 2SA1175 PIC BUFFER
Q006 2SA1175 VOL BUFFER
VHF/UHF TUNER BT-892
ANT TERMINAL
AGC TP15
RF AGC V
Q103 2SK381 AFT SWITCH
IC102 LA7920 BAND SWITCH
D104 RD9.1EN3 9V REG
SF201 SAWF
T201 VIFT
T206 VIFT
CF202 4.5MHz
RF AGC
VIF AMP
SIF AMP
CHANNEL
VOLTAGE
VHF CH2-6 2.8V – 19V


N
(REMOTE CONTROL HEAD AMP)
M1
(REMOTE CONTROL, 33V ZENER, REG, CUSTOMER CONTROL)
M2
(CH SELECT)
D003-016
ISS119
CH SELECT
IC001
MP6359
CONTROLER
Q014
2SC2688
+33V REG
Q013
2SC3064
+33V REG
IC002
μPC574J-G
33V ZENER
D001
RD6.8JN3
RESET
D022
IS1555
SKIP SWITCH2
D021
IS1555
SKIP SWITCH1
Q010
2SC2785
SKIP DET
Q011
2SC2785
SKIP INVERTER
Q003
2SC2785
LED DRIVE I
Q005
2SA1175
PIC BUFFER
Q006
2SA1175
VOL BUFFER
D018
SR632D
RESPONSE DISP
D019
SR632D
SLEEP RESP
Q004
2SC2785
LED DRIVE2
Q012
2SB734
24V CONTROL
Q007
2SC2785
REMOTE BUFFER
TP01 CLOCK
TP02 33V
TP03 24V
TP04 RESET
TP05 SIG IN
PIC UP S006
PIC DN S007
VOL UP S004
VOL DN S005
POWER S001
CH.DN S003
CH.UP S002
S008 AFT
ANT TERMINAL
CHANNEL | VOLTAGE
VHF CH2-6 | 2.8V - 19V
VHF CH7-13 | 8.8V - 20V
UHF CH14-83 | 1.3V - 26.5V
MEASURED BY VTVM
Q103
2SK381
AFT SWITCH
IC102
SF201 SAWF
T201 VIFT
RF AGC
SIF AMP
VIF AMP
IF AGC
DC AMP
D509
GP08D
-70V RECT
TP62 VOL
TP93 12V
TP63 PIC
TP94 -70V
TP16 AFT
Q601
2SC2551
RELAY DRIVE
IC501
CX20013A
S SEP H.V OSC
SYNC SEP
V TRIGGER
V COUNT DOWN
V MUTE
38fH VCO
AFC
H COUNT DOWN
H-V HOLD DOWN
H PRE DRIVE
BLK
V PWM
H BLK
TP86 H FREQ
D604
V09C
PROTECTOR
D601
S3WB60Z
RECT
IC601
STK-563F
REG SND OUT
D602
U05E
STANBY RECT
DRV
AF OUT
REG OUT
STD VOL
IC503
PM-3
PROTECT
S901 MASTER SWITCH
120V AC 60Hz
F601 5A
F602 1.25A
T602 LFT
L601 3.3μH
L602 3.3μH
THP601
RL601
H PULSE
PIC
VOL

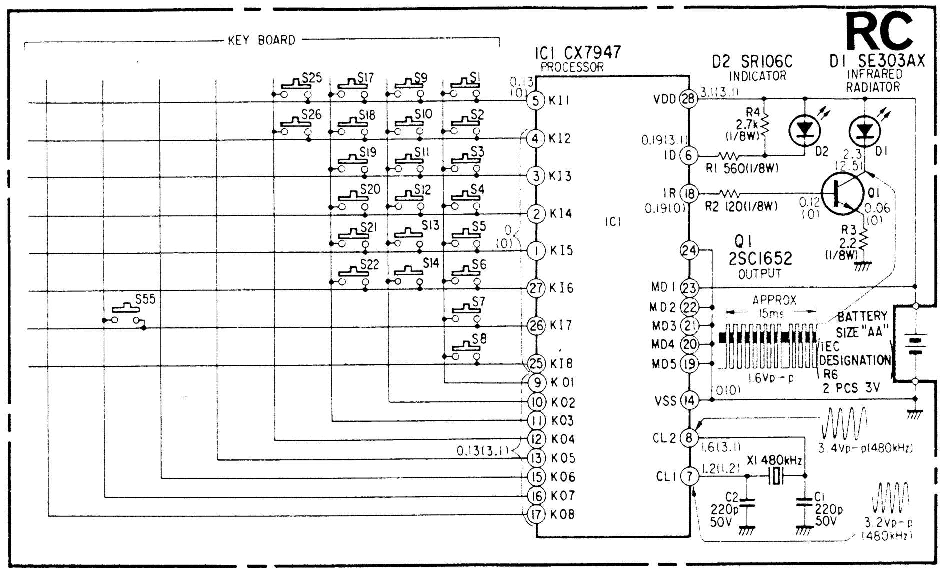
CAUTION:

This set is equipped with a polarized AC power cord plug (one blade of the plug is wider than the other), be sure to use it having the specified part number and connect it as shown in this diagram.

CAUTION:

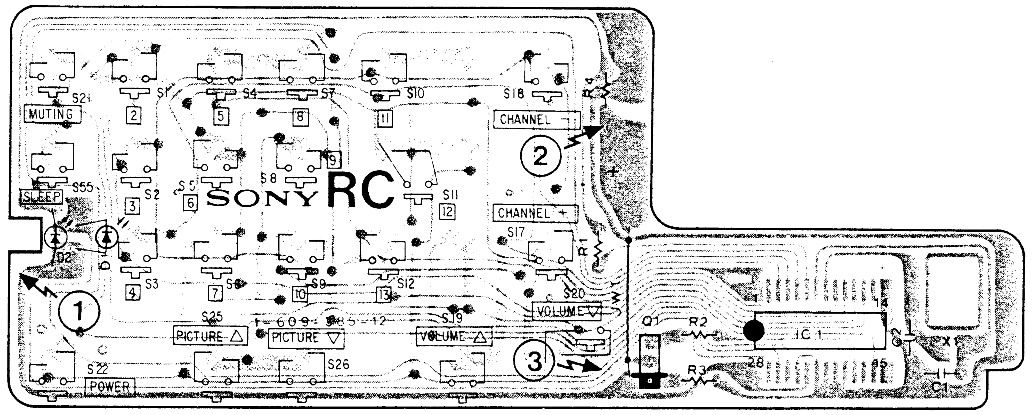
When taking a broken fuse (F602) off, discharge across C602 to avoid shock hazard.

REMOTE COMMANDER RM-712


RC
KEY BOARD
IC1 CX7947 PROCESSOR
D2 SR106C INDICATOR
D1 SE303AX INFRARED RADIATOR
Q1 2SC1652 OUTPUT
R4 2.7k (1/8W)
R1 560(1/8W)
R2 120(1/8W)
R3 2.2 (1/8W)
BATTERY SIZE "AA" IEC DESIGNATION R6 2 PCS 3V
APPROX 15ms
1.6Vp-p
3.4Vp-p(480kHz)
3.2Vp-p (480kHz)
X1 480kHz
C2 220p 50V
C1 220p 50V
S55
VDD
VSS
CL1
CL2

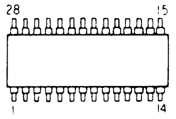
KEY MATRIX TABLE

	K01	K02	K03	K04	K05	K06	K07	K08
KI1	S1 CH-2	S9 CH-10	S17 CHANNEL +	S25 PICTURE +	S33	S41	S49	S57
KI2	S2 CH-3	S10 CH-11	S18 CHANNEL −	S26 PICTURE −	S34	S42	S50	S58
KI3	S3 CH-4	S11 CH-12	S19 VOLUME +	S27	S35	S43	S51	S59
KI4	S4 CH-5	S12 CH-13	S20 VOLUME −	S28	S36	S44	S52	S60
KI5	S5 CH-6	S13 ✳	S21 MUTING	S29	S37	S45	S53	S61
KI6	S6 CH-7	S14 ✳	S22 POWER	S30	S38	S46	S50	S62
KI7	S7 CH-8	S15	S23	S31	S39	S47	S55 SLEEP	S63
KI8	S8 CH-9	S16	S24	S32	S40	S48	S56	S64

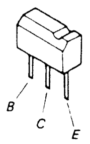

MUTING
SLEEP
SONY RC
CHANNEL
PICTURE
VOLUME
POWER
IC1
①
②
③

- All voltages are in V (volt).
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ/V digital multimeter. No marking: S1 is depressed. ( ): no depressed.
- Voltage variations may be noted due to normal production tolerances.

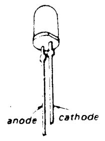
CX7947



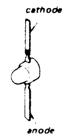
2SC1652



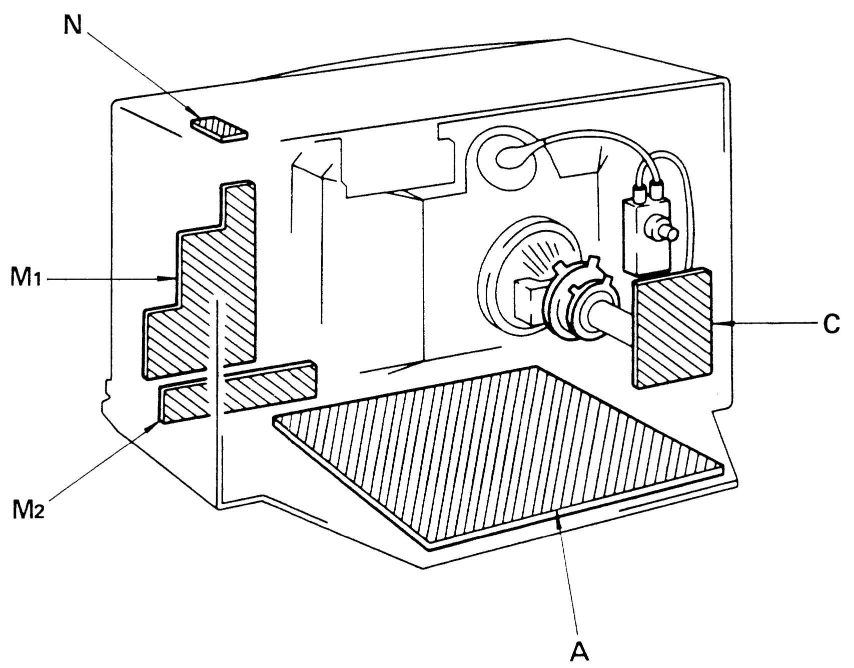
SE303AX


anode
cathode

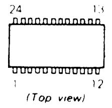
SR106C


cathode
anode

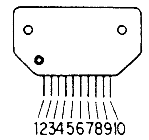
CIRCUIT BOARDS LOCATION



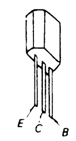
CX20013A



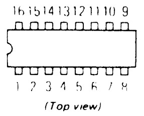
STK563F


12345678910

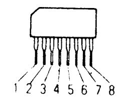
2SA1026



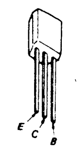
CX841A



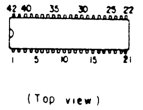
µPC1373H



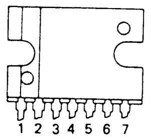
2SA1048
2SA1115
2SC2458
2SC2603



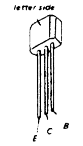
CX848
CX885B



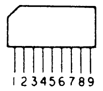
µPC1378H-L



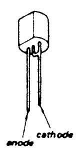
2SA1175
2SC2785


letter side
E C B

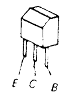
LA7920



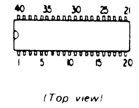
µPC574J-G


anode
cathode

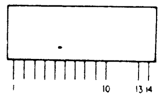
2SB734
2SD774



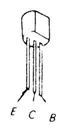
MP6359L



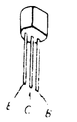
PM-3



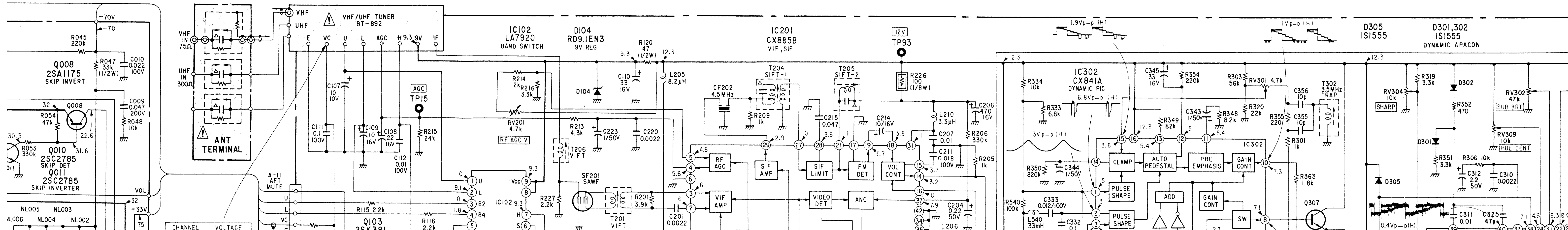
2SA1015
2SA733
2SC1815
2SC2551
2SC945
JC501

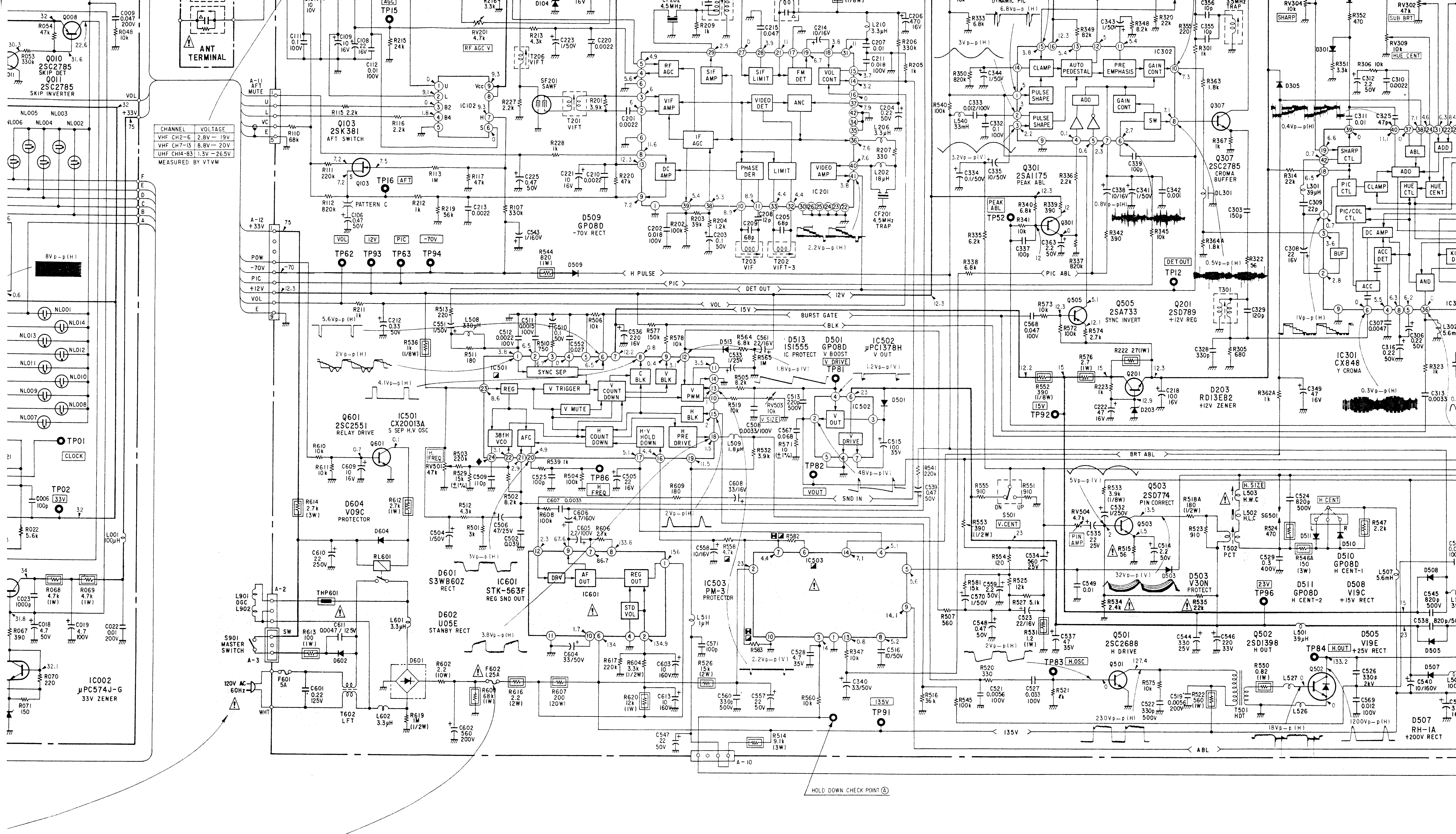


2SB740
2SC2610BK
2SD789



E F G H I J K L


VHF/UHF TUNER BT-892
ANT TERMINAL
Q008 2SA1175 SKIP INVERT
Q010 2SC2785 SKIP DET
Q011 2SC2785 SKIP INVERTER
IC102 LA7920 BAND SWITCH
D104 RD9.1EN3 9V REG
AGC TP15
RF AGC V
IC201 CX885B VIF, SIF
12V TP93
SIF AMP
SIF LIMIT
FM DET
VOL CONT
RF AGC
VIF AMP
VIDEO DET
ANC
IC302 CX841A DYNAMIC PIC
CLAMP
AUTO PEDESTAL
PRE EMPHASIS
GAIN CONT
PULSE SHAPE
D305 1S1555
D301,302 1S1555 DYNAMIC APACON
SHARP
SUB BRT
HUE CENT

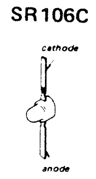

ANT TERMINAL
CHANNEL | VOLTAGE
VHF CH2-6 | 2.8V - 19V
VHF CH7-13 | 8.8V - 20V
UHF CH14-83 | 1.3V - 26.5V
MEASURED BY VTVM
Q010 2SC2785 SKIP DET
Q011 2SC2785 SKIP INVERTER
Q103 2SK381 AFT SWITCH
IC102
T201 VIFT
SF201 SAWF
RF AGC V
TP15 AGC
TP16 AFT
RF AGC
SIF AMP
SIF LIMIT
FM DET
VOL CONT
VIF AMP
VIDEO DET
ANC
IF AGC
DC AMP
PHASE DET
LIMIT
VIDEO AMP
IC201
CF201 4.5MHz TRAP
T203 VIF
T202 VIFT-3
D509 GP08D -70V RECT
TP62 TP93 TP63 TP94
VOL 12V PIC -70V
H PULSE
PIC
DET OUT
12V
VOL
15V
BURST GATE
BLK
PIC ABL
BRT ABL
SND IN
135V
ABL
IC501 CX20013A S SEP H.V OSC
SYNC SEP
V TRIGGER
V COUNT DOWN
V MUTE
REG
C BLK
V BLK
V PWM
H BLK
38fH VCO
AFC
H COUNT DOWN
H-V HOLD DOWN
H PRE DRIVE
TP86 H FREQ
D513 1S1555 IC PROTECT
D501 GP08D V BOOST
IC502 µPC1378H V OUT
TP81 V DRIVE
TP82 VOUT
Q601 2SC2551 RELAY DRIVE
D604 V09C PROTECTOR
D601 S3WB60Z RECT
IC601 STK-563F REG SND OUT
DRV
AF OUT
REG OUT
STD VOL
D602 U05E STANBY RECT
IC503 PM-3 PROTECTOR
RL601
THP601
F601 5A
F602 1.25A
T602 LFT
S901 MASTER SWITCH
120V AC 60Hz
TP91 135V
HOLD DOWN CHECK POINT Ⓐ
IC002 µPC574J-G 33V ZENER
TP01 CLOCK
TP02 33V
IC302
CLAMP
AUTO PEDESTAL
PRE EMPHASIS
GAIN CONT
PULSE SHAPE
ADD
SW
Q301 2SA1175 PEAK ABL
TP52 PEAK ABL
Q307 2SC2785 CROMA BUFFER
TP12 DET OUT
Q505 2SA733 SYNC INVERT
Q201 2SD789 +12V REG
D203 RD13EB2 +12V ZENER
TP92 15V
IC301 CX848 Y CROMA
SHARP CTL
PIC CTL
CLAMP
HUE CTL
HUE CENT
PIC/COL CTL
DC AMP
ACC DET
ACC
BUF
AND
ABL
ADD
Q503 2SD774 PIN CORRECT
S501 V.CENT
D503 V30N PROTECT
TP96 23V
D511 GP08D H CENT-2
D510 GP08D H CENT-1
D508 V19C +15V RECT
Q501 2SC2688 H DRIVE
Q502 2SD1398 H OUT
TP83 H.OSC
TP84 H.OUT
D505 V19E +25V RECT
D507 RH-1A +200V RECT
T501 HDT
T502 PCT
H. SIZE
H CENT
SHARP
SUB BRT
HUE CENT

CAUTION:
When taking a broken fuse (F602) off, discharge across C602 to avoid shock hazard.

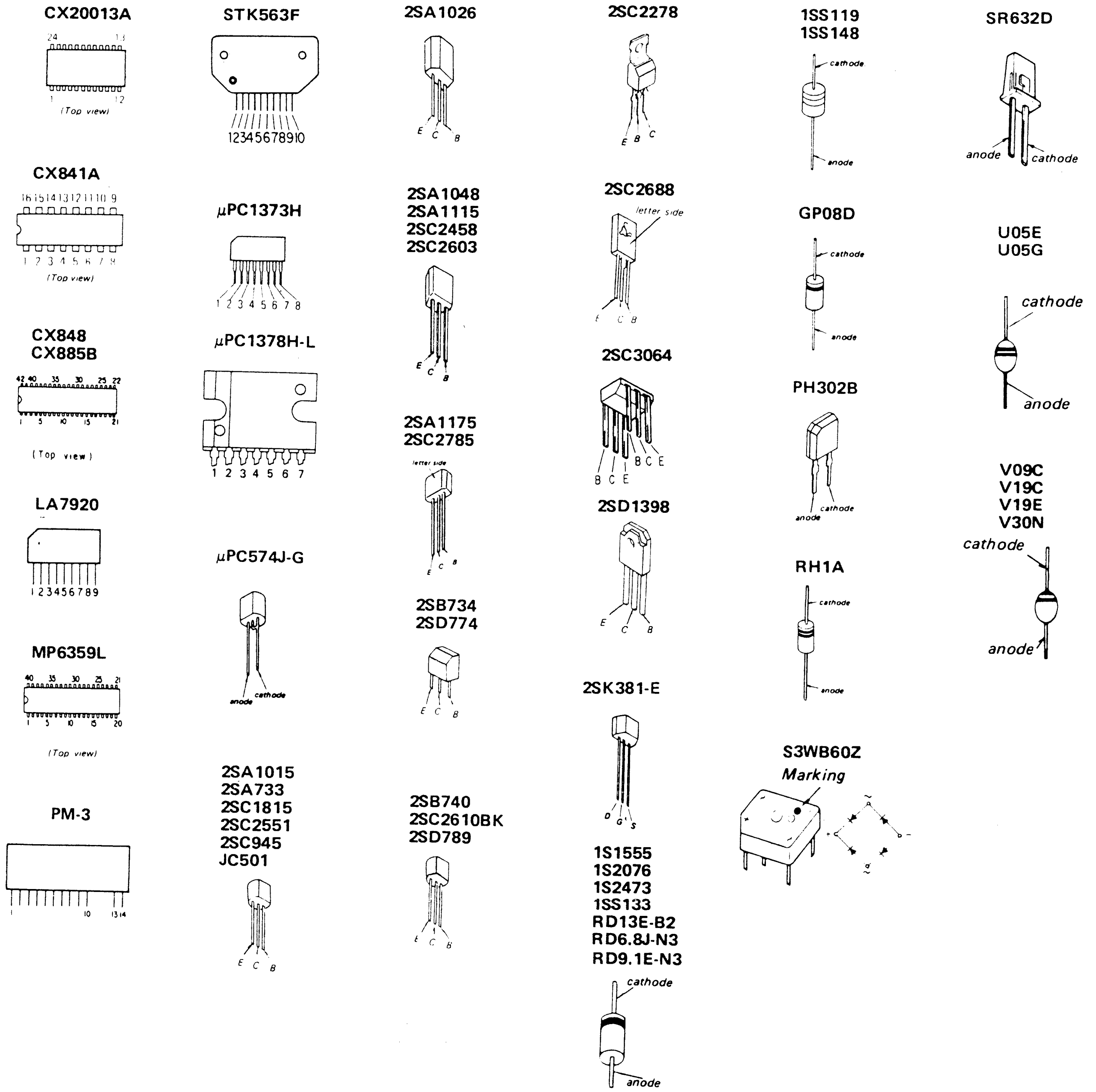
; otherwise

multimeter.

nal produc-

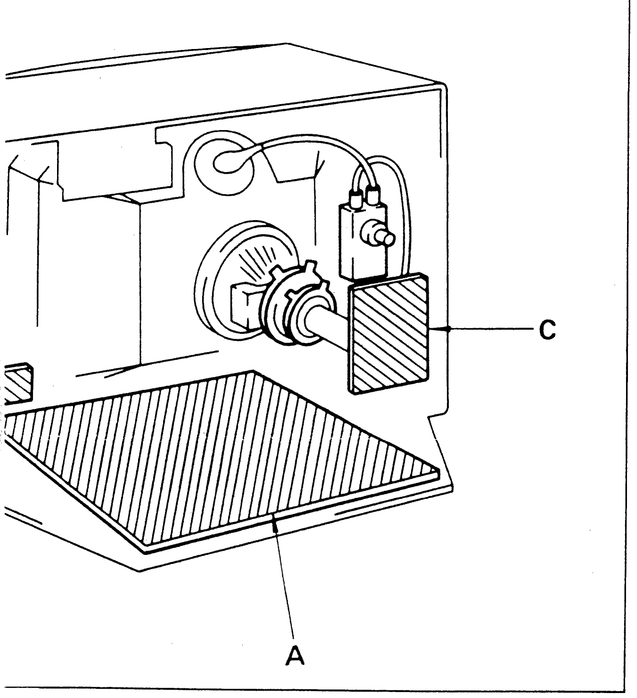


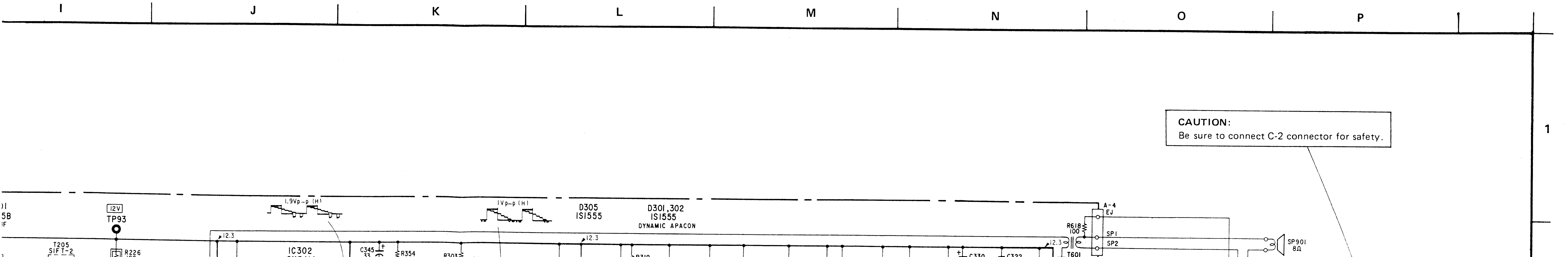
SR106C
cathode
anode



CX20013A
(Top view)
CX841A
(Top view)
CX848
CX885B
(Top view)
LA7920
123456789
MP6359L
(Top view)
PM-3
STK563F
12345678910
μPC1373H
12345678
μPC1378H-L
1234567
μPC574J-G
cathode
anode
2SA1015
2SA733
2SC1815
2SC2551
2SC945
JC501
E C B
2SA1026
E C B
2SA1048
2SA1115
2SC2458
2SC2603
E C B
2SA1175
2SC2785
letter side
E C B
2SB734
2SD774
E C B
2SB740
2SC2610BK
2SD789
E C B
2SC2278
E B C
2SC2688
letter side
E C B
2SC3064
B C E
B C E
2SD1398
E C B
2SK381-E
D G S
1S1555
1S2076
1S2473
1SS133
RD13E-B2
RD6.8J-N3
RD9.1E-N3
cathode
anode
1SS119
1SS148
cathode
anode
GP08D
cathode
anode
PH302B
cathode
anode
RH1A
cathode
anode
S3WB60Z
Marking
SR632D
anode
cathode
U05E
U05G
cathode
anode
V09C
V19C
V19E
V30N
cathode
anode

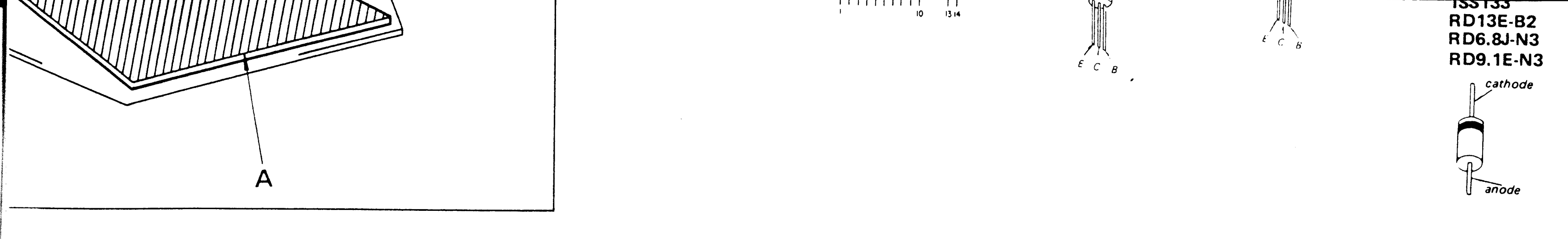
RCUIT BOARDS LOCATION



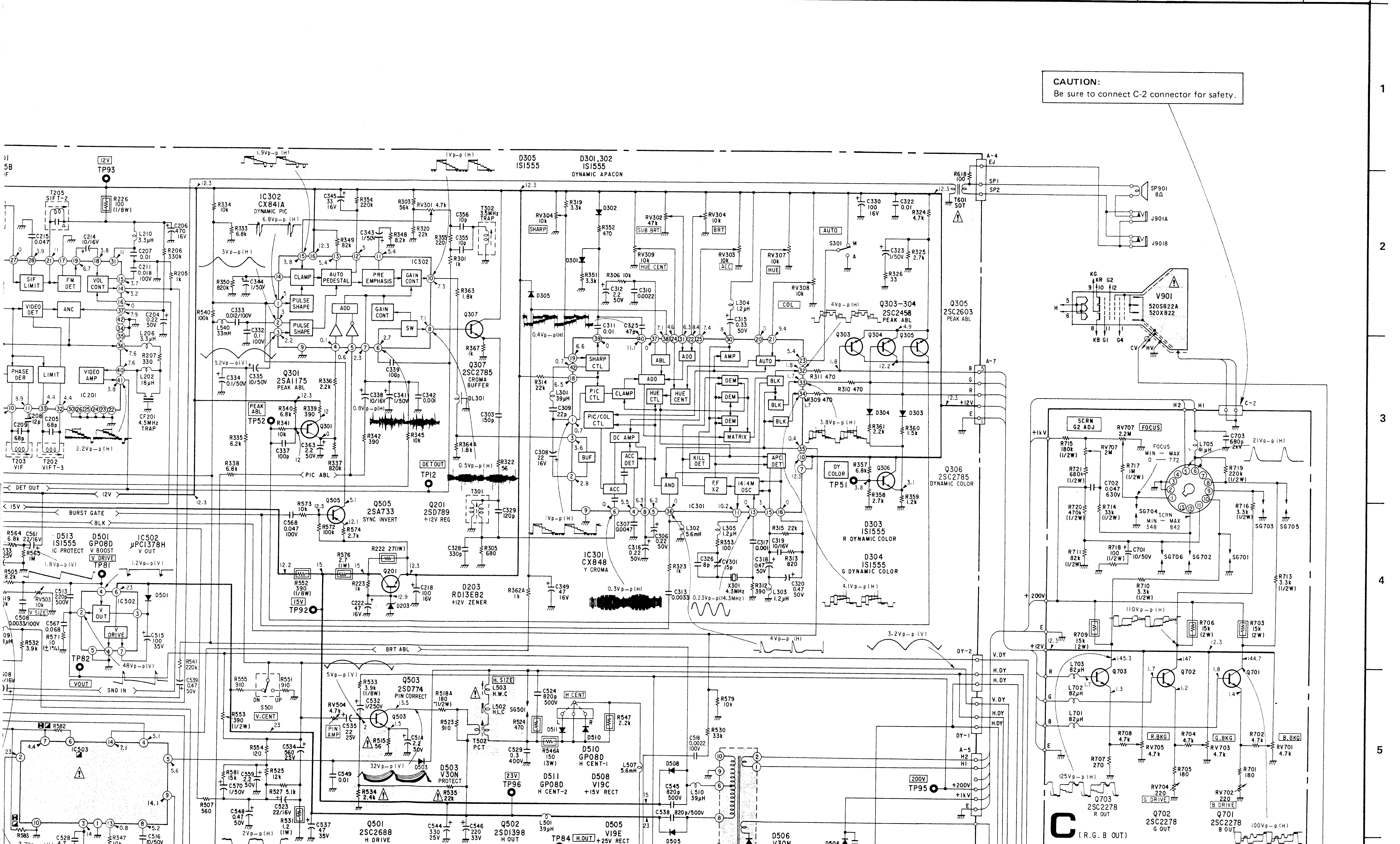


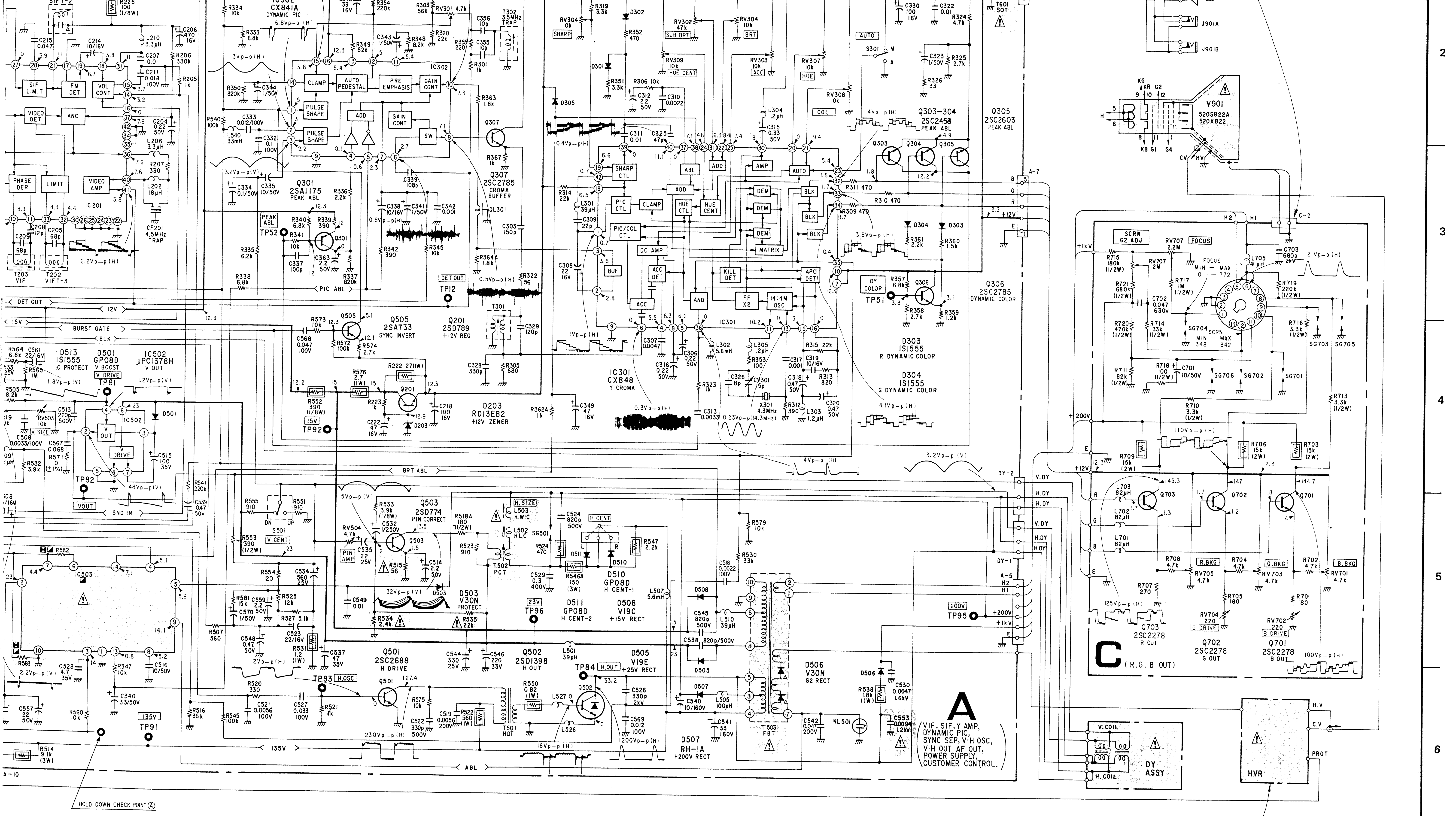
I
J
K
L
M
N
O
P
1
12V
TP93
T205
SIFT-2
R226
1.9Vp-p (H)
12.3
IC302
C345
R354
R303
1Vp-p (H)
D305
IS1555
D301,302
IS1555
DYNAMIC APACON
12.3
C330
C332
R618
100
T601
A-4
EJ
SP1
SP2
SP901
8Ω

CAUTION:
Be sure to connect C-2 connector for safety.


A
E C B
1SS133
RD13E-B2
RD6.8J-N3
RD9.1E-N3
cathode
anode

I	J	K	L	M	N	O	P


1
2
3
4
5
CAUTION:
Be sure to connect C-2 connector for safety.
12V
TP93
R226 100 (1/8W)
T205 SIF T-2
IC302 CX841A DYNAMIC PIC
SIF LIMIT
FM DET
VOL CONT
VIDEO DET
ANC
PHASE DET
LIMIT
VIDEO AMP
IC 201
CF201 4.5MHz TRAP
T203 VIF
T202 VIFT-3
CLAMP
AUTO PEDESTAL
PRE EMPHASIS
GAIN CONT
PULSE SHAPE
ADD
SW
Q301 2SA1175 PEAK ABL
PEAK ABL
TP52
Q307 2SC2785 CROMA BUFFER
DET OUT
TP12
PIC ABL
DET OUT
12V
15V
BURST GATE
BLK
Q505 2SA733 SYNC INVERT
Q201 2SD789 +12V REG
T302 3.5MHz TRAP
T301
D305 1S1555
D301,302 1S1555 DYNAMIC APACON
SHARP
SUB BRT
BRT
HUE CENT
ACC
HUE
COL
AUTO
S301
SHARP CTL
PIC CTL
CLAMP
HUE CTL
HUE CENT
PIC/COL CTL
DC AMP
ACC DET
ACC
BUF
ABL
ADD
AMP
AUTO
DEM
MATRIX
BLK
KILL DET
F.F X2
14.4M OSC
APC DET
AND
IC301 CX848 Y CROMA
X301 4.3MHz
Q303-304 2SC2458 PEAK ABL
Q305 2SC2603 PEAK ABL
D304
D303
DY COLOR
TP51
Q306 2SC2785 DYNAMIC COLOR
D303 1S1555 R DYNAMIC COLOR
D304 1S1555 G DYNAMIC COLOR
R618 100
T601 SOT
SP901 8Ω
J901A
J901B
A-4 EJ SP1 SP2
A-7
V901 520SB22A 520XB22
KG KR G2
KB G1 G4
CV HV
C-2
H2 H1
SCRN G2 ADJ
FOCUS
FOCUS MIN — MAX 0 — 772
SCRN MIN — MAX 348 842
SG703 SG705 SG704 SG706 SG702 SG701
+1kV
+200V
+12V
L705 41μH
R.BKG
G.BKG
B.BKG
RV705 4.7k
RV703 4.7k
RV701 4.7k
RV704 220 G DRIVE
RV702 220 B DRIVE
Q703 2SC2278 R OUT
Q702 2SC2278 G OUT
Q701 2SC2278 B OUT
C (R.G.B OUT)
D513 1S1555 IC PROTECT
D501 GP08D V BOOST
IC502 μPC1378H V OUT
V DRIVE
TP81
V SIZE
V OUT
DRIVE
TP82
VOUT
SND IN
BRT ABL
D203 RD13EB2 +12V ZENER
15V
TP92
S501 V.CENT
DN UP
Q503 2SD774 PIN CORRECT
PIN AMP
H.SIZE
L503 H.W.C
L502 H.L.C
T502 PCT
H CENT
D510 GP08D H CENT-1
D511 GP08D H CENT-2
D508 V19C +15V RECT
D503 V30N PROTECT
IC503
23V
TP96
200V
TP95
DY-2 V.DY H.DY
DY-1
A-5
Q501 2SC2688 H DRIVE
Q502 2SD1398 H OUT
TP84 H.OUT
D505 V19E +25V RECT
D506 V30N


SIF LIMIT
FM DET
VOL CONT
VIDEO DET
ANC
PHASE DET
LIMIT
VIDEO AMP
IC201
CF201 4.5MHz TRAP
T203 VIF
T202 VIFT-3
IC302 CX841A DYNAMIC PIC
CLAMP
AUTO PEDESTAL
PRE EMPHASIS
GAIN CONT
PULSE SHAPE
ADD
SW
Q301 2SA1175 PEAK ABL
PEAK ABL
TP52
Q307 2SC2785 CROMA BUFFER
DL301
T302 3.5MHz TRAP
DET OUT
TP12
PIC ABL
DET OUT
12V
15V
BURST GATE
BLK
Q505 2SA733 SYNC INVERT
Q201 2SD789 +12V REG
T301
D203 RD13EB2 +12V ZENER
D513 1S1555 IC PROTECT
D501 GP08D V BOOST
IC502 μPC1378H V OUT
V DRIVE
TP81
V SIZE
V OUT
TP82
VOUT
SND IN
15V
TP92
SHARP
SUB BRT
BRT
HUE CENT
ACC
HUE
COL
AUTO
S301
SHARP CTL
PIC CTL
CLAMP
HUE CTL
HUE CENT
PIC/COL CTL
DC AMP
ACC DET
BUF
ACC
AND
KILL DET
F.F X2
14.4M OSC
APC DET
DEM
MATRIX
BLK
ABL
ADD
AMP
AUTO
IC301 CX848 Y CROMA
X301 4.3MHz
Q303-304 2SC2458 PEAK ABL
Q305 2SC2603 PEAK ABL
Q306 2SC2785 DYNAMIC COLOR
DY COLOR
TP51
D303 1S1555 R DYNAMIC COLOR
D304 1S1555 G DYNAMIC COLOR
T601 SOT
A-7
BRT ABL
Q503 2SD774 PIN CORRECT
PIN AMP
S501 V.CENT
H.SIZE
L503 H.W.C
L502 H.LC
SG501
H CENT
T502 PCT
D510 GP08D H CENT-1
D511 GP08D H CENT-2
D508 V19C +15V RECT
D503 V30N PROTECT
23V
TP96
IC503
Q501 2SC2688 H DRIVE
Q502 2SD1398 H OUT
H OSC
TP83
H.OUT
TP84
D505 V19E +25V RECT
T501 HDT
D507 RH-1A +200V RECT
T503 FBT
D506 V30N G2 RECT
NL501
135V
TP91
ABL
200V
TP95
A-10
HOLD DOWN CHECK POINT Ⓐ
A
(VIF, SIF, Y AMP, DYNAMIC PIC, SYNC SEP, V-H OSC, V-H OUT AF OUT, POWER SUPPLY, CUSTOMER CONTROL.)
DY-2
DY-1
A-5
V.DY
H.DY
V.COIL
H.COIL
DY ASSY
HVR
H.V
C.V
PROT
V901 520SB22A 520XB22
J901A
J901B
C-2
SCRN G2 ADJ
RV707 FOCUS
FOCUS MIN — MAX 0 — 772
SG704 SCRN MIN — MAX 348 842
SG703
SG705
SG706
SG702
SG701
+1kV
+200V
+12V
R.BKG
G.BKG
B.BKG
R DRIVE
G DRIVE
B DRIVE
Q703 2SC2278 R OUT
Q702 2SC2278 G OUT
Q701 2SC2278 B OUT
C (R.G.B OUT)
2
3
4
5
6
7

CAUTION

When replacing HVR, be sure to check the HOLD DOWN check point voltage value. Refer to the Safety Adjustment Scetion of the Service Manual.

A B C D E F G

1

MOUNTING DIAGRAM

Note: All mounting diagrams are viewed from conductor side.

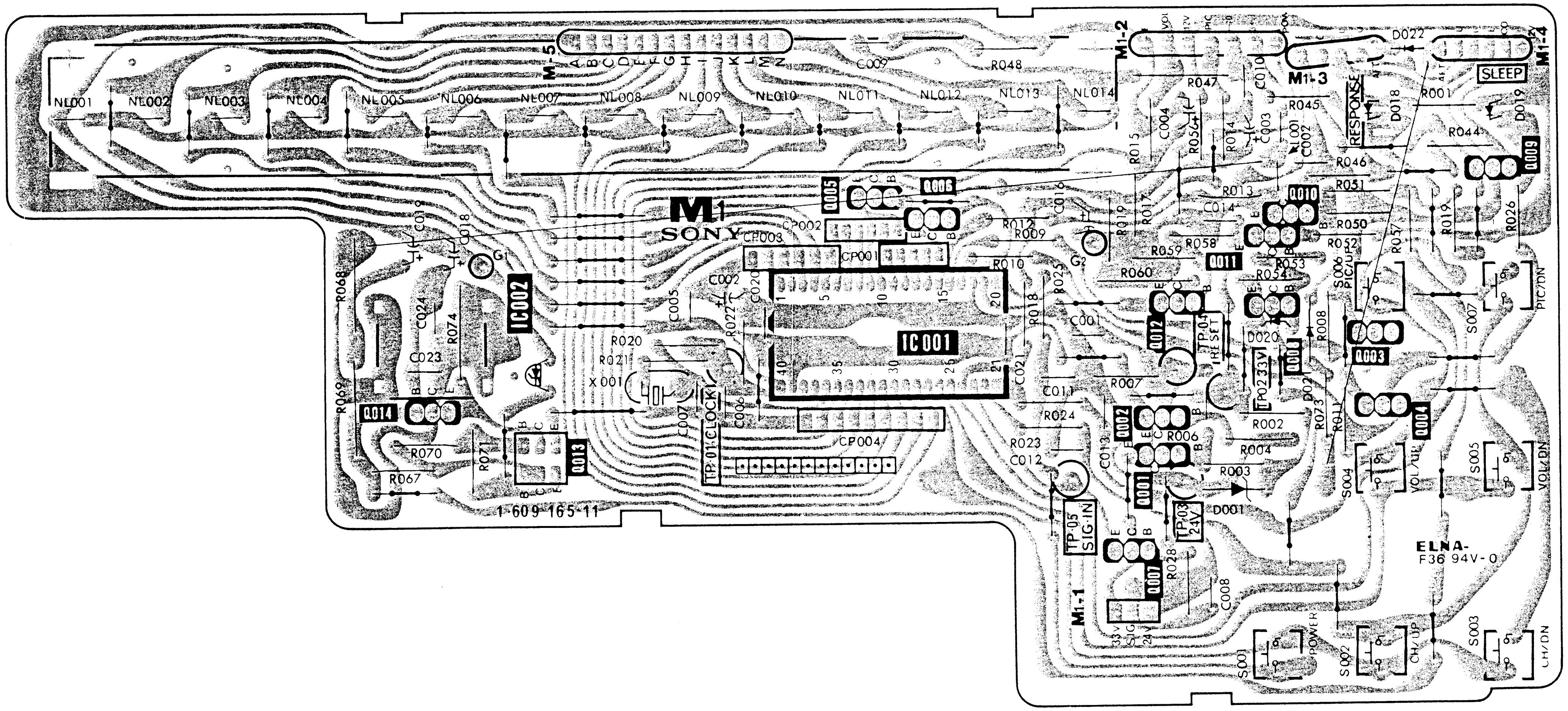
2

M1 (REMOTE CONTROL, 33V ZENER, REG, CUSTOMER CONTROL)

Q·IC	014 IC002 013 005 IC001 006 007 012 002 001 011 010 008 003 004 009
D	001 020 021 018 022 019
TP	01 05 04 03 02

3

4



M1-5
M1-2
M1-3
M1-4
M1-1
M1 SONY
NL001
NL002
NL003
NL004
NL005
NL006
NL007
NL008
NL009
NL010
NL011
NL012
NL013
NL014
IC001
IC002
Q001
Q002
Q003
Q004
Q005
Q006
Q007
Q009
Q010
Q011
Q012
Q013
Q014
D001
D018
D019
D020
D022
X001
TP-01 CLOCK
TP-03 24V
TP-04 RESET
TP-05 SIG-IN
TP-02 33V
SLEEP
RESPONSE
S001
POWER
S002
CH/UP
S003
CH/DN
S004
VOL/UP
S005
VOL/DN
S006
PIC/UP
S007
PIC/DN
R001
R002
R003
R004
R006
R007
R008
R009
R010
R011
R012
R013
R014
R015
R017
R018
R019
R020
R021
R022
R023
R024
R025
R026
R028
R044
R045
R046
R047
R048
R050
R051
R052
R053
R054
R056
R057
R058
R059
R060
R067
R068
R069
R070
R071
R073
R074
C001
C002
C003
C004
C005
C006
C007
C008
C009
C010
C011
C012
C013
C014
C016
C018
C019
C020
C021
C023
C024
CP001
CP002
CP003
CP004
1-609-165-11
ELNA-
F36 94V-0

5

6

A (VIF, SIF, Y AMP, DYNAMIC PIC, SYNC SEP, V·H OSC, V·H OUT, AF OUT, POWER SUPPLY, CUSTOMER CONTROL.)

6

7

8

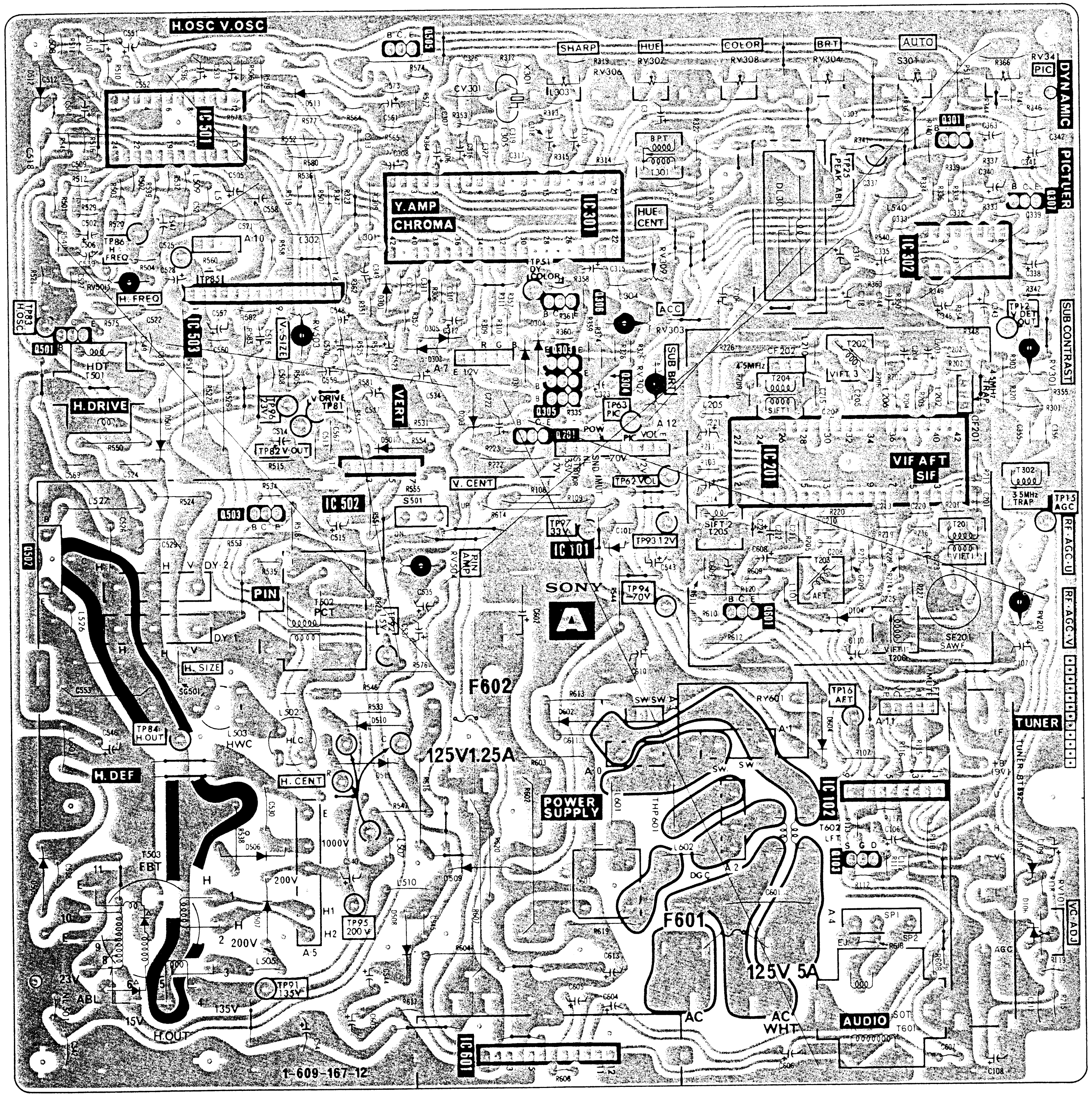
9

10

11

A VIF, SIF, Y AMP, DYNAMIC PIC, SYNC SEP, V · H OSC, V · H OUT, AF OUT, POWER SUPPLY, CUSTOMER CONTROL.

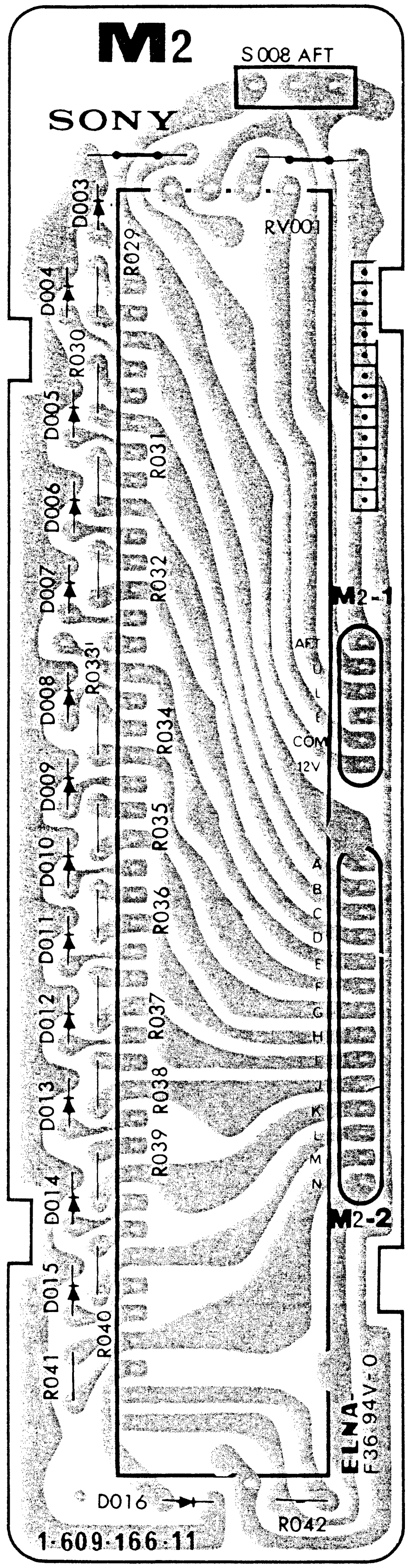
Q · IC	D	ADJ·TP
505		
		RV306,308
	513	RV307, 304
	512	
IC501		
301		
		TP25
307		
IC301		
		TP86
IC302		RV309
		TP85
	301	RV501 TP51
IC503		
306		TP83,RV303
501		RV503,TP12
	305	
303	302 304	
304	303	RV301
305		
		RV302
		TP63
		TP96, 81
	503 203	TP82
201		
	501	
IC502		
IC201		TP62
503		TP97,15
		TP93
502		RV504
		RV202
		TP94
601		RV201
	104	
		TP92
	602	TP16
	604	TP84
	510	
	511	
IC102		
103	506	
	509	
	505	
	601	TP95
	507	
	508	
		TP91
IC601		


H.OSC V.OSC
SHARP
HUE
COLOR
BRT
AUTO
DYNAMIC PIC
PICTURE
IC501
Y.AMP CHROMA
IC301
HUE CENT
IC302
H.FREQ
TP86 H FREQ
TP85
TP83 H.OSC
Q501
HDT T501
H.DRIVE
IC503
V.SIZE
VERT
TP82 V.OUT
ACC
SUB BRT
TP63 PIC
TP62 VOL
SUB CONTRAST
VIF AFT SIF
IC201
3.5MHz TRAP
TP15 AGC
RF AGC-U
RF AGC-V
IC502
V. CENT
S501
IC101
TP93 12V
TP94 -70V
SONY
A
PIN
PIN AMP
T502 PCT
DY 1
DY 2
H. SIZE
Q502
F602
125V1.25A
POWER SUPPLY
TP16 AFT
TUNER
IC102
H.DEF
TP84 H.OUT
L503 HWC
HLC
H. CENT
T503 FBT
1000V
200V
TP95 200V
TP91 135V
135V
ABL
23V
15V
H.OUT
F601
125V 5A
AC
AC WHT
AUDIO
IC601
VC ADJ
AGC
1-609-167-12

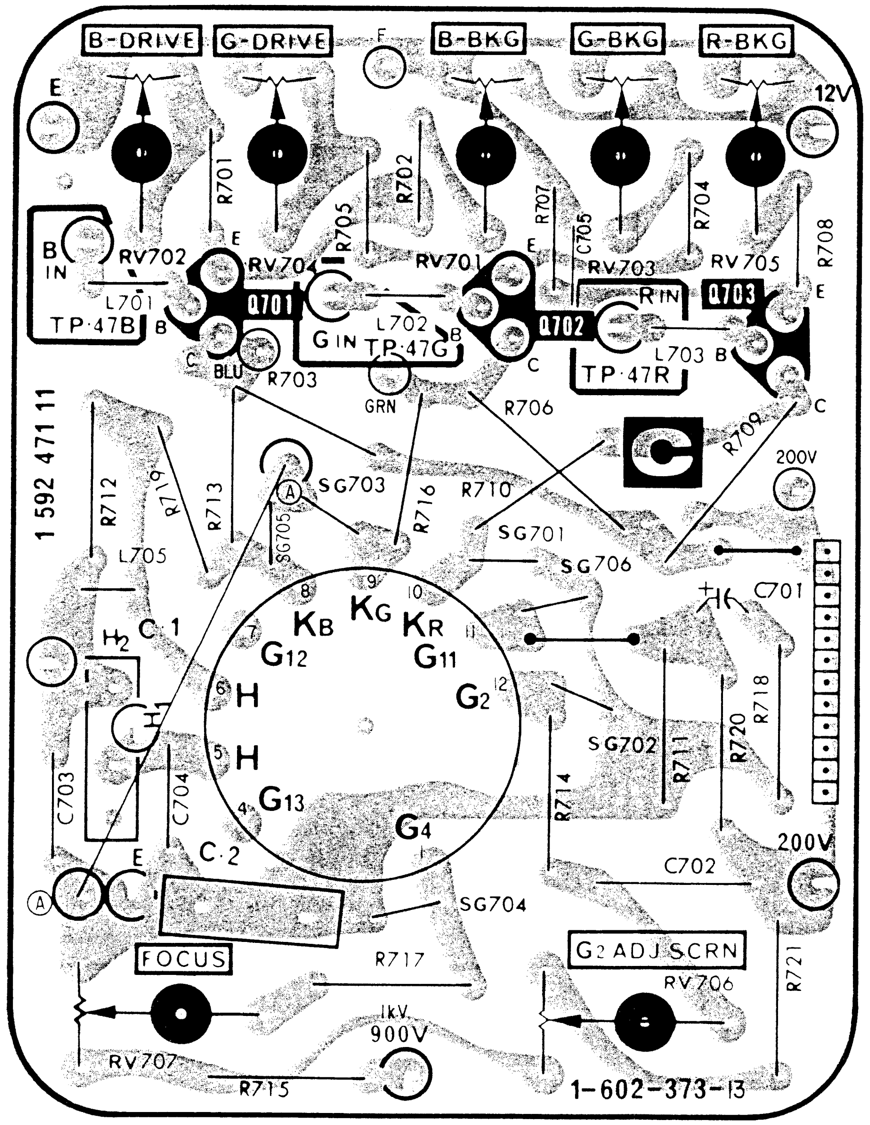
I J K L M N O P Q

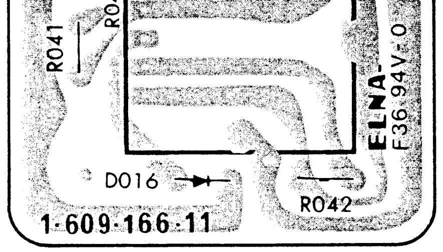
1 2 3 4 5 6

M2 [CH SELECT]

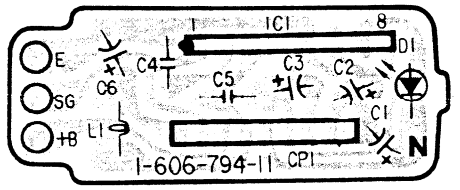

M2
SONY
S008 AFT
RV001
D003
D004
D005
D006
D007
D008
D009
D010
D011
D012
D013
D014
D015
D016
R029
R030
R031
R032
R033
R034
R035
R036
R037
R038
R039
R040
R041
R042
M2-1
M2-2
AFT
COM
12V
A
B
C
D
E
F
G
H
I
J
K
L
M
N
ELNA
F36 94V-0
1-609-166-11

C [R · G · B OUT]


B-DRIVE
G-DRIVE
B-BKG
G-BKG
R-BKG
12V
E
B IN
RV702
RV704
RV701
RV703
RV705
RV706
RV707
R701
R702
R703
R704
R705
R706
R707
R708
R709
R710
R711
R712
R713
R714
R715
R716
R717
R718
R719
R720
R721
C701
C702
C703
C704
C705
L701
L702
L703
L705
Q701
Q702
Q703
TP·47B
TP·47G
TP·47R
G IN
R IN
BLU
GRN
SG701
SG702
SG703
SG704
SG705
SG706
200V
1 592 471 11
KB
KG
KR
G12
G11
G2
H
H
G13
G4
H2
H1
C·1
C·2
FOCUS
G2 ADJ SCRN
1kV
900V
1-602-373-13


R041
R0
ELNA
F36 94V-0
D016
R042
1-609-166-11

N [REMOTE CONTROL HEAD AMP]


E
SG
+B
C6
C4
1
IC1
8
D1
C5
C3
C2
C1
L1
1-606-794-11
CP1
N

6

7

8

9

10

Sony Corporation
Consumer Products Group
Technical Support Dept.

83C0559-1
Printed in Japan
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